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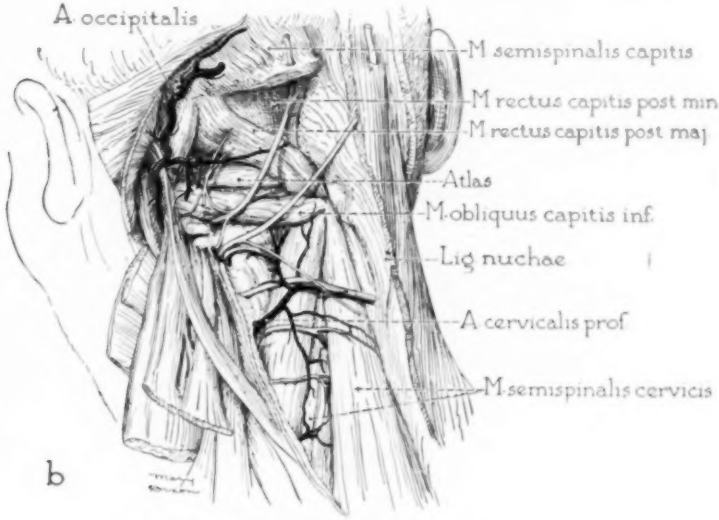

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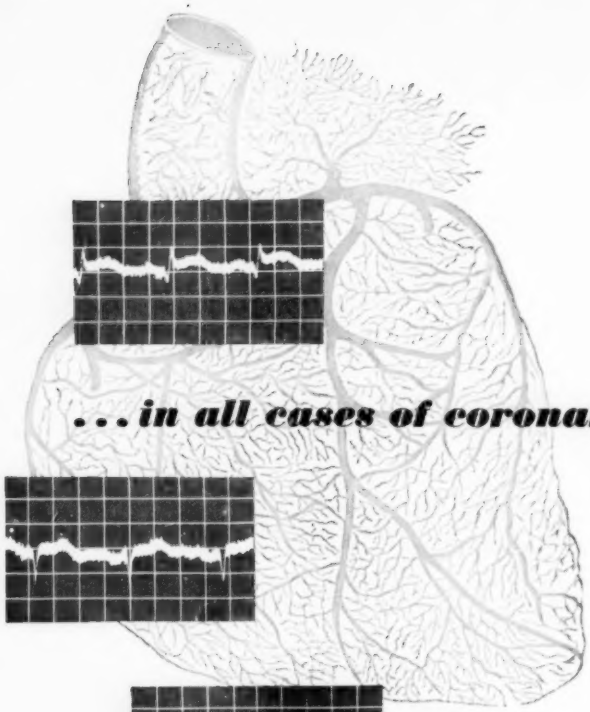

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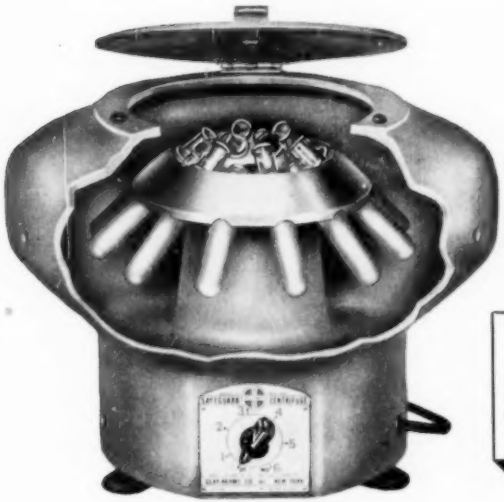

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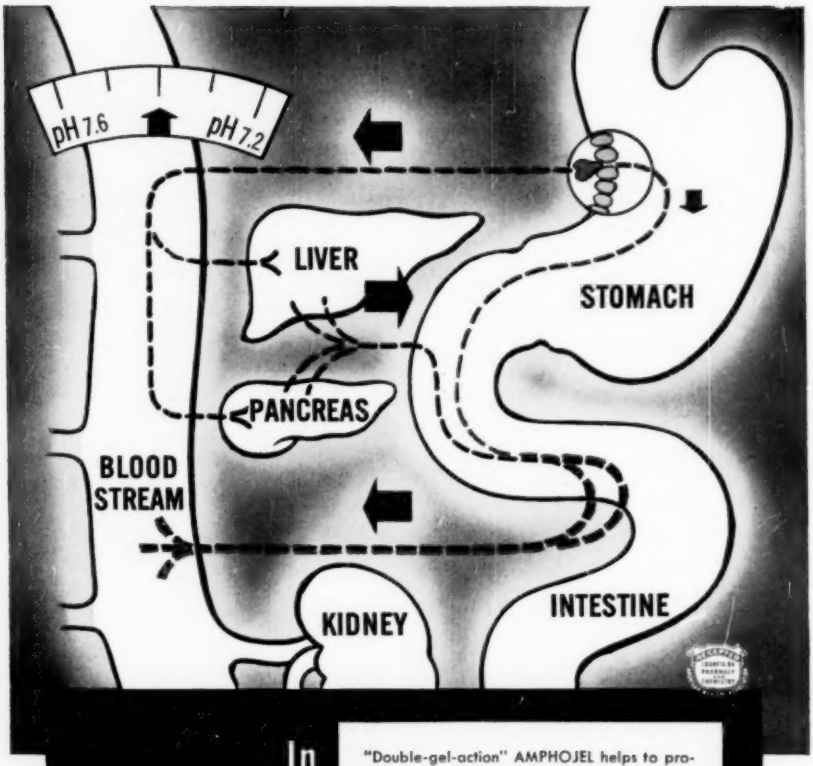

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JOURNAL
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Volume 25 No. 4 FRED C. ZAPFFE, Editor July, 1950

Opportunities in the Teaching of Preventive Medicine*

LEONARD A. SCHEELE
Surgeon General, United States Public Health Service
Federal Security Agency
Washington, D. C.

Not many years ago, a medical colleague said to me "Any physician who displays zeal for preventive medicine is committing professional suicide." Since that time, however, I have never had any cause to regret my choice of a career centering largely in public health and preventive medicine; and I am sure that those of you who have remained in that field have not regretted your choice.

Fortunately, the day is rapidly coming when we will not hear such a pessimistic statement as was made by my friend. There will be full recognition that preventive medicine—whether it is practiced in a private office, a hospital, or a public health department—represents one of the highest achievements of medical knowledge and skill. There has never been a time when opportunities in the teaching and practice of preventive medicine were so rich and so challenging as they are today. Whether or not those opportunities are seized upon and exploited, however, depends primarily on our medical schools.

Those of us, who are in official health agencies, realize all too well that only a pitifully small proportion of medical graduates can be recruited directly to the Federal, State and local public health services. For example, only 38 of 235 physicians this year studying in schools of public health are new recruits. The remaining medical candidates for the master's degree are foreign students or Americans already in public health work.

We in the Public Health Service believe, however, that the task of preparing physicians for the health agencies is only one facet of the medical school's broader responsibility: namely, the training of physicians to practice preventive medicine in whatever setting they choose to function. The gap in preventive services to the public cannot be narrowed unless the medical schools do a better job of teaching a preventive "point of view" to the students and convincing them that there must be closer liaison between private practitioners and their local health services. By local health services, I mean not only the official agencies but also the voluntary health organizations and the many social services closely related to public health and medical care.

*Delivered at the Conference of Professors of Preventive Medicine, New York, N. Y., October 24, 1949.

Unfortunately, the training and background of the average physician do not challenge him sufficiently to look for the opportunities in the practice of preventive medicine, nor do they fit him to recognize these opportunities. Crowded with technical facts on the physiology of the liver, the chemistry of digestion, the gross and microscopic pathology of tuberculosis, the fluid balance in heart failure and so on, the modern medical curriculum seldom teaches the student to contemplate the body as a whole. Much less does it teach him to contemplate the patient as a whole, as an individual in his community, in his family, on his job, and with his total health problems.

As long as medicine is taught chiefly as a series of loosely related technical disciplines, in virtually independent departments, as long as it is taught with too much emphasis on the unusual, so long will we produce physicians who have too little appreciation of preventive medicine. Small wonder that medical graduates of today usually consider community nutrition, the social factors in disease, and "routine" examinations to detect early cases, to be pallid and uninteresting problems! Small wonder that they usually consider such problems fit only for the attention of some lesser order of being (in their eyes) such as a social worker—or a public health officer!

Most of you know that the Public Health Service has recently been conducting a survey of the effects of Federal grants to universities on medical education. In addition to research grants, we have been making grants to medical schools to improve the teaching of psychiatry, cancer and cardiology. In the course of the survey, we have asked the deans and faculties what additional fields need special support. Preventive medicine and pediatrics were the areas most frequently mentioned.

Two days ago, the Association of State and Territorial Health Officers, meeting in Washington, passed a resolution calling on the Public Health Service to take action toward meeting more effectively the needs of the teaching of preventive medicine. The Association pointed out that "there is a great need for establishing departments of preventive medicine and public health in medical schools that do not have such departments and for improvement of those already established." They resolved that "the Public Health Service attempt to obtain grants-in-aid for this purpose, with the usual qualification that full time personnel of superior teaching ability, knowledge and experience . . . be obtained to staff these departments." I am in hearty accord with this statement of urgent need.

This widening recognition of needs in the teaching of preventive medicine is encouraging. Mere strengthening of a department, however, is not the answer. We have not faced up to the radical steps which confront us if we are really to do the job. Medical curricula are filled to bursting with technology, and more subjects are constantly clamoring for admission. Actually, a revolutionary approach may be our only hope.

Deans and faculties and the Council on Medical Education and Hospitals of the American Medical Association should study seriously the existing curricula, as well as what is really needed for training general practitioners and

specialists. They should put into effect the many bold changes that undoubtedly will be necessary to modernize the curricula and the teaching methods.

Equally important is the urgent necessity of studying the adequacy of present premedical courses and training. Both the curricula and the teaching are often isolated from medical education by barriers of separate schools and departments.

At the opposite extreme, we may encounter the same separatism. In some universities, for example, there is very little correlation and cooperation between the graduate school of public health and the teaching of preventive medicine in the undergraduate medical school.

The symposium which your Conference leaders have planned for this afternoon bears directly on these issues. I am especially pleased that you have undertaken this task, and that you are projecting your thoughts to the immediate future of preventive medicine and public health. It will be a tragedy, indeed, if the great desire of the people for health and its expression in the continuing expansion of preventive programs, should continue to be met by a lack of well qualified physicians. In the development of sound teaching programs, the responsibility of the teachers of preventive medicine cannot be over-emphasized. From them must come a full measure of leadership.

Neglect of preventive medicine in the undergraduate curricula undoubtedly has its roots in inadequate recognition by teachers in medical schools that prevention is a clinical function in every specialty. Concretely, this neglect is expressed by the small amount of time devoted to preventive medicine, by the poverty of content in the few courses offered, and by the heavy reliance on didactic instruction, instead of on seminars, clinical clerkships and other modern techniques allowing more student participation.

In some schools, not more than 3 per cent of the total semester hours is devoted to preventive medicine. The courses offered tend to emphasize the mechanics of environmental control rather than the principles of prevention and the social factors in disease and the practice of medicine. How can a student appreciate the social problems of medicine when he is seldom or never confronted with them and when he seldom or never sees the people and the organizations struggling to solve these problems?

The "textbook" approach to the subject so often used tends to discourage many students who may begin with considerable enthusiasm for preventive medicine and public health. I think we should all realize that through the GI Bill of Rights, many talented young men and women are entering the profession, whose families could not possibly have financed their medical education. These students often bring to medicine a more mature concept of the social implications of disease. Their "zeal for preventive medicine" is soon sterilized, not only by the competitive drive among students for advancement in the potentially more lucrative specialties; but also by the discouragement of dull textbooks and uninspired subject matter.

A short time ago, a medical student told me of an experience he had had

in a course dealing with communicable disease control. The subject for the day was rheumatic fever, and the lecturer mentioned its high incidence among families of low income. After the class, the student asked the lecturer whether one would not have to learn about the social and economic factors associated with the disease in order to treat a patient and prevent recurrence. The lecturer replied, "Oh, that's in the social work department. It is not a medical problem."

I submit that these social factors are, on the contrary, very important medical problems—in rheumatic fever and many other diseases. They are, in fact, the very core of preventive medicine and public health.

A great flaw in medical thinking, which lies like a geological fault beneath much of our teaching and practice, is that we equate "social" with specific political ideologies, or with the indigent classes who—we fondly believe—are the sole province of public agencies and who will seldom fall to the lot of the average physician in his private practice.

I want to make myself crystal clear. Let me read from Webster's International Dictionary, the applicable definition of the adjective "social." "Social—of or pertaining to society, especially to society as an organism, or as a group of interrelated, interdependent persons; hence, to human relationships in general."

One cannot discount the relationship of poverty and disease, nor yet the responsibility of the public agencies and the medical profession for attacking both social and physical pathology. I wish to emphasize that when we are talking about the social aspects of medicine, we are concerned with the total health care of an individual in society. We are talking about whether or not a community has the facilities to provide proper and adequate service to all classes of patients. We are talking about whether or not a man's occupation influences his disease, and if so, can he be rehabilitated or can a more salubrious occupation be found? We are talking about whether or not chronically ill patients can be taken care of adequately in their homes—both for the medical benefits that may result and for the more efficient use of hospital beds. We are asking: How can prolonged illness be linked with restorative services, including general education for the children and vocational rehabilitation for the adults?

It is such thinking that projects the concept of preventive medicine and public health far beyond the narrow confines of "isolation and quarantine" for acute infectious diseases. It is such thinking that projects the teaching of preventive medicine far beyond the confines of its present status in the majority of medical schools.

Perhaps it is too soon to expect more than a limited viewpoint in this phase of medical education. We are prone to forget that medicine has only recently become a university trained profession. It still has to learn how to draw more on the rich resources of higher nonmedical education for scholarly approaches to teaching techniques, as contrasted with presentation of technical, scientific data.

The lecturer whom I quoted earlier was not far from the mark when he said that study of the social and economic factors was in the social work department. University departments of sociology and social work have done an excellent job in undergraduate teaching of the social aspects of medicine and public health. If called on, the departments of economics, psychology and education also could make contributions to the content of medical teaching. The departments of education, in particular, could contribute much to the improvement of methods in medical education.

I said earlier that prevention is a clinician's responsibility in every medical specialty. There are certain fields in which the public interest already is so great that integration of preventive medicine with teaching in the specialties is imperative. Prevention has become an integral part of the practice of pediatrics and to a less extent of obstetrics. There are beginnings in the fields of psychiatry, orthopedics, physical medicine and chronic disease in general. But how inefficient, how inadequate, is this slow, piece-meal approach!

The Committee on Administrative Practice of the American Public Health Association stated very clearly the modern concept of preventive care in the excellent report of its Subcommittee on Medical Care published in the *American Journal of Public Health* for July, 1949. "Prevention," the group stated, "no longer deals only with preventing the initial onset or occurrence of disease. It also means preventing the continuance or progress of disease which has already occurred; it means preventing the development or persistence of disability or invalidism, and of dependency, destitution and other undesirable social effects."

We, in the Public Health Service, are looking beyond even that advanced concept. We believe that the responsibility of medicine and public health is to take the offensive; to go out and search the highways and byways, among the supposedly healthy people, and find incipient disease, or even deviations from the normal that are recognized as predisposing to, or precursors of serious disease.

It is in this concept that we have developed and are applying case finding techniques to discover tuberculosis in its earliest manifestations. During the past year, more than 1.5 million people were X-rayed by Public Health Service teams. It is significant of the potentialities of mass case finding that in one city, a number of early cases of pulmonary cancer were detected, along with many cases of tuberculosis. The physicians to whom these patients were referred commented that without the search among general population groups, the cases probably would not have come to medical attention until the disease was hopelessly advanced.

Other demonstrations in diabetes control, heart disease and related ailments, nutrition and cancer control are emphasizing the same approach. But these are only the "trial flights," the "pilot studies" that should lead to community wide and State wide programs of case finding and referral. Their success will depend on practicing physicians to whom the patients turn.

The sum total of all these varied "beginnings" and many other more com-

pletely developed programs is to get patients under good preventive care, while health is still an attainable goal for them. The question which we often ask ourselves, and which top flight medical practitioners often ask us, is: What is the average physician going to do with these patients when they are funnelled into his office?

The answer, I believe, rests ultimately in the hands of the medical schools, and particularly in the hands of the teachers of preventive medicine. If the average physician cannot be oriented in the problems of preventive medical care for the individual patient, it is not likely that he will either know what to do, or even what is needed to make his job effective. We, in the Public Health Service, realize that the average physician does not have a good general understanding of the concept of prevention, because of the extra training and orientation that has to be done for our own clinicians, after they have completed their residencies and even after they have qualified for the medical and surgical specialty boards.

I want to make it clear that my criticisms in this paper are not directed at practicing physicians but at the curricula of the day and the obvious inadequacies of medical training. Physicians—all of us—have been, in a sense, the victims of inadequate training, and many of us have had to learn the hard way.

For those who may question my statement that there are gaps in medical education, I point to the fact that our detection of early disease is still so inadequate that tens of thousands of patients with early cancer go on every year to late cancer and needless death. The same is true of our management of many other chronic diseases. The detection and treatment of these early cases are primarily the physician's responsibility; the preventable deaths are by no means all due to the ignorance or procrastination of the patient.

I point also to the small number of men whom medical educators interest in administrative medicine, public health administration and medical research. In public health administration, and in our health departments, the present shortage of personnel with a medical background is eloquent proof of the failure to do the full job in medical education.

The emphasis on the recognition and management of frank disease—and rare cases at that—in medical teaching, has had a twofold bad effect. The average physician often disregards the beginnings of disease—or he is too busy or unable to detect them; but his competency in times of crisis gives the public a blind faith in the diagnosis of their illness and a bottle of medicine. This emphasis—proper as it may be in its place—has given too few people real experience with the benefits of individual health promotion and preventive care.

We must perforce agree that effective preventive care will require not only strong emphasis on the teaching of preventive medicine, but also close coordination of community medical and public health services. In the report I referred to earlier, the Subcommittee on Medical Care stated that, "this implies the geographic availability of services, as provided through coordinated regional networks and special incentives for rural practice."

As many of you know, the National Hospital Program has been enormously expanded by a recent act of the 81st Congress. Not only does the law provide for doubling the Federal contribution to the construction of hospitals and health centers, but it authorizes the Public Health Service to make grants-in-aid up to $1.2 million a year for five years to promote research in the effective use of hospital services.

These funds may be allotted to State and local governments, universities, hospitals and other nonprofit institutions. Thus we may be able to foster demonstrations in coordinated hospital systems, with university medical schools as the centers. I am sure you appreciate how closely this program will touch medical education. It will involve the placing of emphasis on prevention, and on home care and office care, diagnostic services for abulatory patients, and the simplification of administrative procedures in the provision and receipt of personal care.

It is such high adventures as these—the care of the chronically ill, the administration of preventive services, and the ultimate realization of the patient's fullest potentialities for healthful living—that preventive medicine and public health offer to the medical student, the teacher, and the practicing physician. We, in the Public Health Service, hope that the medical schools will join with us wholeheartedly in the adventure and go forward to higher levels in teaching the art and science of medicine. As medical education goes forward, the health of the people advances.

Preventive Medicine a Science

A blundering art until thirty or forty years ago, preventive medicine was made a science by the discovery of the causes of many of the serious epidemic diseases. To any one of you who wishes to know this side of science, what it is, what it has done, what it may do, let me commend Radot's "Life of Pasteur" which reads like a fairy tale. It is more particularly in connection with the great plagues of the world that man's redemption of man may be in the future effected; I say in the future because we have only touched the fringe of the subject. How little do we appreciate what even a generation has done. The man is only just dead, Robert Koch, who gave to his fellow men the control of cholera. Read the history of yellow fever in Havana and in Brazil if you wish to get an idea of the powers of experimental medicine; there is nothing to match it in the history of human achievement.—(Wm. Osler: Man's Redemption of Man. Paul B. Hoeber, Inc. —New York. 1910, p. 26.)

A Formula To Determine the Cost of Research

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Many of the institutions for higher learning and, in particular, the schools of medicine in this country are in such an unfavorable financial condition that their responsible officers are gravely concerned about the future. We should take cognizance of and correct this condition because productive research in the medical sciences depends, in large part, on full utilization of the catholicity of knowledge that resides in schools of medicine. It is my purpose to suggest that a prerequisite to the solution of this problem is an analysis of the expenditures made to discharge the purposes of a school of medicine: (1) the training of physicians, teachers and investigators, and (2) the conduct of research.

Until comparatively recent times, the training of physicians, teachers and investigators in the medical sciences was relatively inexpensive, and this expense was defrayed, in large part, by the students themselves.[1] The training of these specialists by the system of preceptorships and, later, by proprietary schools of medicine, was quite inexpensive, but the instruction was, generally, so inadequate and devoid of inspiration, and the stimulus for research so lacking, as to bring about the development of the complex and expensive organization called the modern school of medicine, which, usually, is a part of a vastly more complex and expensive university.

Until the turn of the present century, research in the medical sciences was conducted, in the main, by a few individuals who gave to it only a small fraction of their waking hours. This was due, partly, to the paucity of funds available for the support of research, and, partly, to the limited number of institutions that offered full time employment to any large number of scholars.

In the modern school of medicine, the best qualified individuals are sought to teach the various medical specialties; and, although the scholar's services for teaching might be needed for only a fraction of the year, full time employment is offered as an inducement. It is understood that any time free of teaching and administrative responsibilities may be devoted to research. This arrangement provides impetus to research, for not only does it support the investigator but it also makes possible the many benefits that accrue from cross fertilization of active minds.

Full time employment of large numbers of scholars in schools of medicine would seem to provide an effective stimulus for research, but it is a fortunate investigator, indeed, who enjoys more than the most meager of supplies, equipment, space and assistants with which to experiment in accordance with his particular abilities and interest. If expenditures in support of research are to be regarded as only those costs beyond the total expenses required to

1. NORWOOD W. F.: *Medical Education in the United States before the Civil War*. University of Pennsylvania Press, Philadelphia, 1944.

maintain the educational programs of the school, it is doubtful if many, or any, schools of medicine were at the turn of this century expending more than 10 per cent of their budgets for research.

Within recent years, there have been created many foundations, both private and public, and several departments of government which provide funds to support research. Most of these organizations have operated on the policy that if they were to provide funds for technical assistants and adequate stores of equipment, supplies and materials, the scholars, for whom the schools of medicine had already provided full time employment, could complete more research in less time than they would otherwise be able to do.

The demand for extra-institutional funds for the support of research has become enormous because these funds became available at about the same time that there was widespread acceptance of the worth of the products of research (so valuable did these products appear that many schools of medicine provided employment to some individuals who devoted their full energies to research).

Research in the medical sciences, with its relatively small consumption of funds in the latter part of the nineteenth century, has become a major consumer of money and provides full- and part-time employment for many thousands of individuals. In fact many of our schools of medicine are today more nearly institutions for the conduct of research than they are schools for the training of physicians and teachers. In certain of our schools of medicine, extra-institutional funds in support of research may equal or even surpass the total of the funds available for the support of all the remaining activities of the institution.

Only within the last few years has there been a general realization that acceptance of a grant-in-aid forces the institution to expend some of its own funds if the original purpose of the grant is to be realized. The acceptance of large amounts of extra-institutional funds in support of research has forced the institution to expand its physical facilities, its administrative, technical and secretarial staffs, and to spend more money for maintenance and for public utilities, to mention only a few examples. In all too many instances the increased expenditures have been made at the expense of the educational program.

Very few of our institutions for higher learning can do more than guess as to what portion of their operating expenses should be charged to research. It is suggested that it would be relatively easy to correct, at least partly, the unfavorable financial condition of our schools of medicine if these institutions would provide an intelligent analysis as to the cost of their various products.

A method of determining the actual cost of conducting a program of research has been the subject of some little consideration and study. In fact, several of the grant making agencies have a policy of adding to the grant-in-aid a fixed percentage to help the grantee institution pay part of the hidden cost of conducting the research. Some agencies do not make any contribution whatsoever toward defraying such costs, other agencies increase

the amount of the grant-in-aid by from 5 to 8 per cent, and still others add approximately 50 per cent of the amount of the salaries paid by the grant. These policies are not only evidence of the fact that the actual cost of conducting the research is undetermined and that they, at best, provide a token contribution to the solution of a problem that has not been clearly defined, but the last of these policies actually tends to encourage those programs of research that employ relatively large numbers of individuals and utilize small amounts of space and equipment and consume small quantities of supplies and materials.

An approximation of the cost of conducting research may be obtained by computing the expenditures of an institution in relation to the number of professional persons employed and the number of students enrolled. Such approximations are, however, so patently arbitrary and so obviously do not reflect the cost of conducting any particular program of research that they are of little worth. If any formula for determining the cost of research is to have real value as a fund raising instrument for the institution, it must reflect within practical limits the actual cost of conducting any particular program of research; and the cost of conducting research varies with the nature of the project and with the institution under whose roof the research is carried out.

Appended herewith is a formula that has been found to be a useful instrument for determining the actual cost, within practical limits, of conducting any program of research. It is believed that this formula, while of necessity employing certain arbitrary figures, does reflect variations in cost due either to the nature of the particular project or to the practices of the institution under whose auspices the research is carried out.

This formula has been employed at a number of institutions with interesting results. A few have objected on the grounds that the application of the formula to a program of research would require too much effort on the part of the business office. It is believed that the real basis for this objection resides in the fact that the bookkeeping practices of the institutions were such that it was impossible to apply the formula. In three institutions with excellent bookkeeping procedures application of this formula to large grants in no case required more than one day's work on the part of one member of the accounting staff.

Application of this formula to twenty-three grants-in-aid in support of programs of research of quite different nature would indicate that the cost of conducting a program of research is from 11.51 to 44.99 (average 26.90) per cent more than the amount of the grant-in-aid. It is also of interest to note that variations in cost were reported from the same institution. This finding quite possibly also explains the suggestion of several institutions that this formula be abandoned in favor of certain current practices for determining the cost of conducting research that are based on the average expenditures of an institution or that employ an arbitrary percentage above the amount of the grant-in-aid.

The responsibility on the part of the grant making agencies to assume all

or part of the cost of conducting a program of research for whose conduct a grant has been made is difficult to determine and should be the subject of a future communication. But without further discussion of the problems involved, it is suggested that grant making agencies should assume 90 per cent of the cost of conducting a program of research as determined by the formula appended.

Such a policy would aid materially in alleviating the present unfavorable financial condition of schools of medicine and other institutions for the conduct of research. Furthermore, such a policy would permit the grantee institution complete freedom in determining those programs of research which they wish to pursue without their being any advantage to conducting particular kinds of research. Finally, such a policy would require the grantee institution to employ some of its own funds to conduct those programs of research that are aided by a grant, thus assuring interest on the part of the institution to attain maximum return for all monies expended. Whereas, this latter would seem to be important as a matter of principle, it is suggested that the actual amount of the contribution by the fund granting agency and by the grantee institution in support of a program of research be decided by discussions between donor and recipient.

APPENDIX

A FORMULA TO DETERMINE THE TOTAL COST OF CONDUCTING A PROGRAM OF RESEARCH

PREFACE

Any formula for determining the cost of conducting a program of research must of necessity be based upon certain assumptions that are arrived at arbitrarily.

The statements of costs and the percentages employed in the following pages are for purposes of example only. The determination of the cost of conducting any particular program of research must be based upon the operating expenses of the institution as reflected in the most recent annual report. The work sheets and the supporting data relating to any such determination should be available on request.

SCHEDULE ONE

Cost of Additions to Institutional Personnel* Required for Program of Research and Ordinarily Included in Grant-in-Aid

ITEM A—	Professor (Smith) F. T.	$ 9,000.00
	Associate Professor (Jones) F. T.	8,000.00
	Assistant Professor (Henry) F. T.	6,000.00
	Instructor (Doe) F. T.	3,500.00
	Research Associate (Wear) F. T.	5,500.00
	Research Assistant (Green) F. T.	4,500.00
	Senior Technician (Brown) F. T.	3,500.00
	Junior Technician (Gray) F. T.	2,800.00
	Junior Technician (Vacancy) F. T.	2,400.00
	Laboratory Assistant (Johnson) P. T.	1,000.00

*Costs as reflected in Schedule One are only for such additions to present institutional personnel as are required for conducting the program of research. Vacation and sick leave will be allowable in accordance with the established policy of the grantee institution.

	Animal Caretaker (Harvey) F. T.	2,800.00
	Animal Caretaker (Vacancy) P. T.	1,200.00
	Secretary (Norris) F. T.	3,200.00
	TOTAL	$53,400.00
ITEM B—	Amount charged to research (100% of Schedule One)	$53,400.00

SCHEDULE TWO

Cost of Additional Long-Life Equipment Required for Program of Research and Ordinarily Included in Grant-in-Aid

ITEM A—	(1) Electron miscroscope	$15,000.00
	(1) Refrigerated centrifuge	2,500.00
	(20) Monkey cages @ $10.00 each	200.00
	(100) Mouse cages @ $2.00 each	200.00
	TOTAL	$17,900.00
ITEM B—	Amount charged to research (100% of Schedule Two)	$17,900.00

SCHEDULE THREE

Cost of Short-Life Equipment, Supplies and Materials Required for Program of Research and Ordinarily Included in Grant-in-Aid

ITEM A—(2,000) Monkeys @ $35.00 each	$70,000.00
Express charges (Monkeys @ $2.00 each)	4,000.00
(10,000) Mice @ 0.30 each	3,000.00
Food for animals	5,000.00
Miscellaneous chemicals	500.00
Miscellaneous glassware	500.00
Operating and autopsy instruments	400.00
Office supplies and stationery	200.00
TOTAL	$83,600.00
ITEM B—Amount charged to research (100% of Schedule Three)	$83,600.00

SCHEDULE FOUR

Cost of Other Items Required for Program of Research and Ordinarily Included in Grant-in-Aid*

ITEM A—Travel *b.	$ 1,000.00
Contingency**	6,000.00
TOTAL	$ 7,000.00
ITEM B—Amount charged to research (100% of Schedule Four)	$ 7,000.00

*Costs not admissible include:

(a) Expense incident to construction, alteration and maintenance of physical plant.

(b) Expense incident to travel, except where travel is required for the conduct of the program of research.

(c) Expenses incident to purchase of books and periodicals.

(d) Expenses incident to purchase of more than 100 reprints of each scientific article written by the principal investigators on subject matter covered by the grant-in-aid.

**Expenditures from this account are allowable only for the payment of items similar to those enumerated elsewhere in the budget submitted and approved. Expenditures for the payment of items not included elsewhere in the budget are allowable only after prior approval in writing.

* * * * *

SCHEDULE FIVE

Cost of Institutional Personnel* Required for Program of Research But Not Ordinarily Included in Grant-in-Aid

ITEM A—Professor (James)	$ 2,000.00
1/5 of $10,000.00.	
Associated Professor (Smythe)	400.00
1/20 of $8,000.00.	
Technician (Boyd)	750.00
1/4 of $3,000.00.	

*Vacation and sick leave will be allowable in accordance with the established policies of the grantee institutions.

Faculty members designated as full time employees of grantee institution shall be considered as being employed and as receiving one-twelfth of the regular annual salary during all months of the calendar year. This applies even in those cincumstances where the employee may be required to remain in residence only a portion of the calendar year, and/or in those instances where the annual salary of the employee is prorated over a period of less than twelve months and in which case the employee would normally receive additional compensation by the institution for services rendered during any term when he would not normally be required to be in residence at the institution.

Secretary (Johnston)	280.00
1/10 of $2,8000.00.	
(200 hours) consultation with other institutional personnel @ $10.00 per hour	2,000.00
TOTAL	$ 5,430.00
ITEM B—Amount charged to research (100% of Schedule Five)	$ 5,430.00

SCHEDULE SIX

Square Footage (or, if the institution prefers, cubic footage may be employed in this and subsequent computations) of Building Space Occupied by Program of Research

ITEM A—Square footage of building space occupied full time by program of research	8,000
ITEM B—Square footage of building space occupied part time (but computed as full time occupancy) by program of research:	
(1) 300 sq. ft. (Professor James—See Schedule Five, Item A) occupied 20 per cent of time by program of research = sq. ft full time occupancy	60
(2) 400 sq. ft. (Associate Professor Smythe—See Schedule Five, Item A) occupied 5 per cent of time by program of research = sq. ft. full time occupancy	20
(3) 600 sq. ft. (Technician Boyd—See Schedule Five, Item A) occupied 25 per cent of time by program of research = sq. ft. full time occupancy	150
(4) 100 sq. ft. (Secretary Johnston—See Schedule Five, Item A) occupied 10 per cent of time by program of research = sq. ft. full time occupancy	10
(5) 2000 sq. ft. (College Administration of particular college responsible for program of research—See Schedule Six, Item E, Formula 1) occupied 16.19 per cent of time by program of research = sq. ft. full time occupancy	324
(6) 25,000 sq. ft. (Institutional Administration—See Schedule Six, Item E, Formula 2) occupied 1.47 per cent of time by program of research = sq. ft full time occupancy	368
(7) 45,400 sq. ft. (Library—See Schedule Six, Item E, Formula 3) occupied 1.47 per cent of time by program of research = sq. ft. full time occupancy	667

ITEM C—Square footage of "dead" building space (closets, hallways, lavatories, etc.) occupied part time but computed as full time occupancy by program of research (See Schedule Six, Item E, Formula 4) 960

ITEM D—Total square footage (computed) occupied full time by program of research (add Items A, B, and C, Schedule Six) 10,559

ITEM E—Formula 1.—Amount of grant-in-aid ($161,900.00, Schedule Nine, Item A5) divided by total operating expenses of particular college responsible for program of research including grant-in-aid ($1,000,000.00, Schedule Nine, Item A3) multiplied by square footage of building space occupied by college administration (2,000 sq. ft., Schedule Six, Item B5).

Formula 2.—Amount of grant-in-aid ($161,900.00, Schedule Nine, Item A5) divided by total operating expenses of institution including grant-in-aid ($11,000,000.00, Schedule Nine, Item A1) multiplied by square footage of building space occupied by institution administration (25,000 sq. ft., Schedule Six, Item B6).

Formula 3.—Amount of grant-in-aid ($161,900.00, Schedule Nine, Item A5) divided by total operating expenses of institution including grant-in-aid ($11,000,000.00, Schedule Nine, Item A1) multiplied by square footage occupied by library (45,400 sq. ft., Schedule Six, Item B7).

Formula 4.—Ten per cent of sum of Items A and B of Schedule Six.

* * * * *

SCHEDULE SEVEN

Cost of Utilities (Heat, Electricity, Gas, Water, Compressed Air, Vacuum, etc.) Required for Program of Research but not Ordinarily Included in Grant-in-Aid

ITEM A (1)	Heat $0.36 per sq. ft. per year multiplied by square footage occupied full time (computed) by program of research (10,559—Schedule Six Item D)	$ 3,801.24
(2)	Electricity $0.12 per sq. ft. per year multiplied by square footage occupied full time (computed) by program of research (10,559—Schedule Six, Item D)	1,267.08
(3)	Water $0.025 per sq. ft. per year multiplied by square footage occupied full time (computed) by program of research (10,559—Schedule Six, Item D)	263.97
(4)	Gas $0.018 per sq. ft. per year multiplied by square footage occupied full time (computed) by program of research (10,559—Schedule Six, Item D)	190.06
(5)	Compressed air—Negligible	000.00
(6)	Vacuum—None	000.00
	TOTAL	$ 5,522.35
ITEM B	Amount charged to research (100% of Schedule Seven)	$ 5,522.35

SCHEDULE EIGHT

Cost of Custodial Services and Maintenance for Building Space Required for Program of Research But Not Ordinarily Included in Grant-in-Aid

ITEM A—(1)	Custodial services $0.10 per sq. ft. per year multiplied by square footage occupied full time (computed) by program of research (10,559—Schedule Six, Item D)	1,055.90
(2)	Maintenance (painting, plastering, electrical, plumbing, alterations, etc.) $0.50 per sq. ft. per year multiplied by square footage occupied full time (computed) by program of research (10,559—Schedule Six, Item D)	5,279.50
	TOTAL	$ 6,335.40
ITEM B	Amount charged to research (100% of Schedule Eight)	$ 6,335.40

SCHEDULE NINE

Cost of Administration Required for Program of Research But Not Ordinarily Included in Grant-in-Aid

ITEM A	A statement of costs:	
(1)	Total operating expenses last fiscal year of institution including grant-in-aid	$11,000,000.00
(2)	Total operating expenses of Institution Administration (include all expenses chargeable to administration above the level of the college or equivalent except: utilities and maintenance and custodial care of buildings)	250,000.00
(3)	Total operating expenses of college or equivalent responsible for program of research including grant-in-aid (include all expenses except: maintenance and custodial care of buildings, utilities and proportionate share of cost of a) library and b) institution administration)	1,000,000.00
(4)	Total operating expenses of administration of college or equivalent responsible for work supported by grant-in-aid (include all expenses chargeable to administration except: maintenance and custodial care of buildings, utilities, and proportionate share of cost of a) library and b) institution administration)	25,000.00
(5)	Amount of grant-in-aid (Add Schedules, One, Two, Three and Four)	161,900.00
(6)	Total operating expenses of library (include all expenses except: maintenance and custodial care of buildings, utilities and proportionate share of institution administration)	1,000,000.00
ITEM B	Proportionate share of operating expenses of institution administration chargeable to program of research: Total operating expenses of institution administration ($250,000.00, Schedule Nine, Item A2) divided by total operating expenses of institution ($11,000,000.00, Schedule Nine, Item A1) multiplied by amount of grant-in-aid ($161,900.00, Schedule Nine, Item A5)	3,675.13

ITEM C—Proportionate share of operating expenses of administration of college or equivalent responsible for program of research and chargeable to program of research: Total operating expenses of administration of college or equivalent ($25,000.00, Schedule Nine, Item A4) divided by total operating expenses of college or equivalent ($1,000,000.00, Schedule Nine, Item A3) multiplied by amount of grant-in-aid ($161,900.00, Schedule Nine, Item A5).. 4,047.50

ITEM D—Amount charged to research (100% of Schedule Nine) 7,722.63

SCHEDULE TEN

Cost of Library Required for Program of Research but not Ordinarily Included in Grant-in-Aid

ITEM A—Proportionate share of operating expenses of library chargeable to program of research: Total operating expenses of library ($1,000,000.00, Schedule Nine, Item A6) divided by total operating expenses of institution ($11,000,000.00, Schedule Nine, Item A1) multiplied by amount of grant-in-aid ($161,900.00, Schedule Nine, Item A5) ..... $ 14,716.71

ITEM B—Amount charged to research (100% of Schedule Ten) ..... $ 14,716.71

SCHEDULE ELEVEN

Allowance for Depreciation on Building Space and on Basic Equipment Required for Program of Research But Not Ordinarily Included in Grant-in-Aid*

ITEM A—Capital outlay:

(1) Gross construction cost of building space occupied by program of research: Total square footage occupied by program of research (10,559 sq. ft., Schedule Six, Item D) multiplied by $12.00 per sq. ft. = ... $ 126,708.00

(2) Net construction cost of building space occupied by program of research: Gross construction cost ($126,708.00, Schedule Eleven, Item A1) less 25 per cent (Salvage value at end of fifty years) = ... 95,031.00

(3) Basic equipment cost (include routine equipment such as desks, chairs, tables, microscopes, etc., actually available for use by program of research, but not unusual items of equipment included in grant-in-aid): Total square footage occupied by program of research (10,559 sq. ft., Schedule Six, Item D) multiplied by $1.00 per sq. ft. = ... 10,559.00

*Actual costs should be employed where buildings have been constructed and/or equipped subsequent to 1940. In those instances where construction and/or equipment was completed at a prior date and where costs are not known, 1940 construction and/or equipment costs should be employed.

ITEM B—Allowance for depreciation on construction and on basic equipment utilized by program of research:

(1) Two per cent per year of net construction costs ($95,031.00, Schedule Eleven, Item A2) = ... 1,900.62

(2) Five per cent per year of basic equipment cost ($10,559.00, Schedule Eleven, Item A3) = ... 527.95

ITEM C—Amount charged to research (100% of Schedule Eleven) ..... $ 2,428.57

SCHEDULE TWELVE

Allowance for Loss of Income on Capital Outlay Resulting from Expending Funds for Constructing and Equipping Building Space Occupied by Program of Research and Not Ordinarily Included in Grant-in-Aid

ITEM A—Total capital outlay (add 1 and 3, Item A, Schedule Eleven) ..... $ 137,267.00

ITEM B—Allowance for loss of income = three percent of $137,267.00 (Schedule Twelve, Item A) 4,118.01

ITEM C—Amount charged to research (100% of Schedule Twelve) 4,118.01

Summary of Expenditures Required for Program of Research.

ITEM A—Expense ordinarily included in grant-in-aid:

(1) Schedule One—Item B	$ 53,400.00
(2) Schedule Two—Item B	17,900.00
(3) Schedule Three—Item B	83,600.00
(4) Schedule Four—Item B	7,000.00
TOTAL DIRECT COSTS	$161,900.00

ITEM B—Expenses not ordinarily included in grant-in-aid:

(1) Schedule Five—Item B	$ 5,430.00
(2) Schedule Seven—Item B	5,522.35
(3) Schedule Eight—Item B	6,335.40
(4) Schedule Nine—Item D	7,722.63
(5) Schedule Ten—Item B	14,716.71
(6) Schedule Eleven—Item C	2,428.57
(7) Schedule Twelve—Item C	4,118.01
TOTAL INDIRECT COSTS	$ 46,273.67

ITEM C—Total cost of conducting program of research $207,973.67

ITEM D—Total contribution of sponsoring agency to nearest dollar $187,176.00

ITEM E—Total contribution of grantee institution ..... $ 20,797.67

A Format For Medical School Catalogs

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There is little question that the catalog published by a medical school should play a very important role in representing a specific institution. Often it is the first contact for a prospective medical student; in like manner, the catalog may influence, positively or negatively, a candidate for a faculty position; similarly, it plays a definite role in the impression which is obtained by a foundation or agency which may be considering an application from a given institution for research or other funds. These factors are of considerable importance, and, therefore, directly or indirectly, it seems practical for medical schools and colleges to publish the best possible catalog.

The present study was made because in the last three or four years it has become increasingly clear that certain catalogs are so put together that it is difficult to obtain specific information unless one literally reads the entire catalog. It is not to be thought that there is any intent to suggest that all medical school catalogs should be standardized to meet certain specific requirements. However, it is believed that the material presented here will show that there is room for improvement in many catalogs to the extent that arrangement, presentation and clarification of contents would be greatly improved.

The catalogs used in this study, representing the 71 four year medical schools in the United States, were current in that they were issued either last year or this year. Neither the two year schools nor the Canadian schools were included, because it was felt that it would not be fair to compare them, since in the two year schools certain data would not be presented and in Canadian schools the usage of certain terms did not conform to those used by American institutions.

Arbitrarily, 17 points of interest with subheads were carefully studied and tabulated (See table). Except for the subheads these items will now be enumerated in outline form and each one discussed in some detail.

I. Outside Cover:

A. Volume number. B. Address. C. Date of publication.

At first thought, data contained on the outside cover of the catalog might not seem to be of much importance. However, since they first meet the eye of those who might pick up a catalog, they are of importance and should present certain pertinent information. The survey shows that 5 schools did not even indicate the year of the session which the catalog represented; 30 did not give any type of an address to indicate where the school was located; 27 failed to indicate the date of publication; and 37 did not list the volume number of the catalog. Unless this information was duplicated on the inside first page, it was necessary, in many instances, to peruse many pages before

such information could be found. Many individuals, who are looking at a medical school catalog for the first time, are not familiar with the geographic location of the college. Certainly, there are those who would not know the city even if they knew the state. Finally, it should be possible to ascertain immediately the year for which the bulletin was published.

II. Picture of School

More than one-half the institutions described in this paper published a picture of their medical school. Sometimes it was an actual photograph; in other cases it was a map or plat, but, in any instance, it was a distinct asset when found present. Certainly, anyone interested in association with a given medical school would appreciate having a general idea of the medical school building and grounds and such an arrangement is indeed desirable; if for nothing else but for the sake of completeness.

III. Table of Contents

Apparently 15 schools would give the impression that they did not want anyone to find anything in their catalog without reading it all, because this number did not have a table of contents. Just why it should be omitted is a mystery because, unlike a textbook, the table of contents is of paramount importance in trying to find anything in a catalog.

IV. Calendar:

A. Monthly calendar. B. School calendar or schedule.

As a rule, catalogs from institutions which meet the requirements set up in this paper showed a monthly calendar for the year of the session and, usually, for the following two years, i.e., if the catalog was published for 1949-1950, a monthly calendar for 1949, 1950 and 1951 was present. However, 36 schools did not publish a monthly calendar in their catalog.

There were only two items which every catalog contained. One was the medical school calendar or schedule, and the other will be discussed under its appropriate heading. It is of interest that the medical school schedules or calendars were not uniformly placed in the 71 catalogs examined. It would seem most practical that the schedule should be opposite the regular monthly calendar in order that anyone could easily check the dates of any calendar against the schedule without leafing through many pages as would be necessary in many of the catalogs.

V. Board of Trustees and/or Board of Regents

A listing of the Board of Trustees and/or Regents was omitted in 15 catalogs. Such an omission may not appear to be of serious consequence, but it is an interesting fact that on many occasions I have heard this matter discussed with special reference to the length of term for which these individuals hold office and the date of expiration of the present term. Obviously, the Board of Regents and/or Board of Trustees are of considerable importance to various foundations which may be interested in giving research grants to medical schools. If these foundations see listed an individual who is well

known to them, it may or may not make a great deal of difference as to whether an institution receives a grant. To say that the individuals who control the institution will serve as a basis for the rejection or receipt of a grant-in-aid may be stretching a point, but I am confident that at least indirectly it has been of value in a number of instances.

VI. Officers of School

When this study was first started, about the tenth catalog examined gave evidence that it was impossible to find out who was dean. This school was and still is one of the top ranking medical schools in the country and it seemed incredible that the name of the dean could not be found in the official catalog. As a matter of fact, 5 catalogs did not contain the officers of administration, i. e., the president, the vice president, the registrar and the dean. Certainly, it seems fair to assume that the reader would want to know who the administrative officers of any institution are and it is not clear why this important item is missing in 5 instances. Obviously, the extra half page necessary for printing these names would not make the catalog cost too much more. Rather, it would seem that the catalog committee, if there is one, had not given much thought to the best possible presentation of their medical school.

VII. Faculty

Five medical colleges refrained from listing their faculty, which coincidentally is the same number that omitted the officers of administration. This is an even more serious omission in some respects, because, certainly, the various book publishing companies, the pharmaceutical houses, and the governmental agencies, to say nothing of colleagues and prospective students, want to know who is on a given faculty. It is not possible for me to understand why this important item should be missing in any medical catalog unless it was to save a few cents on cost, or unless the catalog committee was lax, or unless the faculty of the school wished to remain anonymous.

VIII. Committees

A list of the most important faculty committees was presented in 47 of the 71 catalogs reviewed. Such listings are very useful to those who wish to be informed, not only as to the membership of these committees, but as to the functions and interests of the medical school. Perhaps the 24 schools which omitted a presentation of the various committees did so because their admissions committee did not want to be pestered by students wishing to enter. However, I am sure that the value of listing committees heavily outweighs any satisfaction that an admissions committee might obtain from not being too prominently displayed in writing.

IX. General Statements:

A. Purpose. B. Historical sketch.

Only 38 colleges presented a general statement of purpose for their institution. This was, in my opinion, the greatest single omission. It has been argued in medical education circles that probably most of the medical

schools in the country have as their chief interest the production of a man who will be fitted to practice general medicine with a minimum of supervision. However, it is believed by many that certain schools do not have a schedule or use a methodology of teaching to attain this end. On the contrary, certain schools apparently have in mind the training of doctors of medicine who will become research workers and teachers of medicine. Others probably intend that most of their graduates will go into the specialty fields. Since this is the case, it seems to be worthwhile that any given college should clearly state the purpose for which they are graduating doctors of medicine. Certainly it is to be desired that prospective general practitioners, specialists and research teachers should graduate from medical schools in the proper proportion. However, to leave the impression that a given school wants to train men only for general practice and then turn around and "stuff him" from morning to night with a specialist philosophy is hardly fair to the student. I cannot see any reason for medical schools to hide their own philosophy of purpose.

Of real interest is the inclusion of an historical sketch. A large majority, 51, did publish this in their catalogs. Perhaps, it is not of great real value, but certainly from an idealistic standpoint it is useful and helpful information.

X. Requirements for Admission:

A. General information.

As noted in "IV. B." each catalog contained a school calendar or schedule for the year. This unanimous inclusion was also made relative to requirements for admission to the medical school. However, without going into detail, there was a great variety in the manner of presentation of entering qualifications. In some instances, it would necessitate a good deal of expert legal advice to ferret out exactly what was wanted in the way of requirements. It is trite to state that admission standards should be brief without omission, and succinct in presentation of the facts. Too often a student who has planned his or her premedical work on the basis of admission requirements as set forth by medical school A, find that he or she has misinterpreted some of the courses and consequently is unprepared. It is unforgivable for a medical school to allow a careless, poorly presented statement of admission regulations to appear in its catalog.

It is probably not necessary to add that in the better catalogs tuition and fees were listed in general relation to requirements for admission and data having to do with promotions. In addition, this section of the catalog usually contained information relating to loan funds, prizes offered, scholarships, and, often, information on the medical school hospitals. The inclusion of this material in this part of the catalog would seem to be the most reasonable and sensible place to put it, since it all relates directly to the prospective student and he is the one who is chiefly interested in all of the items discussed in "X" and "XI."

XI. Requirements for Promotion

A total of 26 schools did not indicate that they had a promotion system, or, if they did, just how it operated. Perhaps these institutions felt that such a presentation was unwise, because in certain cases students who have scholastic difficulty may be given enough information to take undue advantage of loopholes. However, it seems reasonable that a student should have a general, if not a specific, notion as to what constitutes satisfactory work for promotion to the next class. Obviously, it is difficult to have a completely inelastic system of advancement, but the presentation of this item in a catalog can easily be made such that it will satisfy the student and, at the same time, will give a certain leeway to the promotions committee when unusual cases arise.

XII. Graduation Requirements

Only 8 schools failed to present requirements for graduation. Since this item is not specified, one would have to assume that the college in question had very elastic regulations covering graduation. Again, as with promotion requirements, it possibly is to be desired that rules covering graduation should not be hard and firm. However, there is a distinct sin of omission involved in the failure to show any graduation requirements because, as is well known, most states will not license a graduate of medicine who is not at least 21 years of age. While in this particular era such a possibility is not likely to happen, it frequently occurred during the war years and, after all, who is to say that we shall forever have peace. Over and above this legal aspect of graduation requirements, it only seems fair that the student should know what is to be expected of him, at least generally speaking. As already pointed out, this item was present in overwhelming numbers and certainly should be found in every medical school catalog.

XIII. Medical Hours Per Acadamic Year

In recent times, there has been much argument as to whether or not the clock hours of any given subject should be listed as such. It was interesting to note that 37 schools showed the hours for each course and 34 did not. This is a very even division of thought on the matter and possibly mirrors the divided concept as it stands at this time.

The reason most given against listing course hours is that this denotes spoon feeding on the part of the faculty. Furthermore, the more outspoken opponents state that students should be turned into the anatomy laboratory, for example, and after they have finished their work on one section or another, they should be examined to ascertain whether they are familiar with the subject. The time consumed for such a program, according to those who think along these lines, may vary considerably. I am heartily in favor of such a program, provided that there were restrictions on the time involved and that any overlap of time in one course did not handicap work in other basic sciences. While the Utopian concept of teaching would probably involve studying the anatomy, histology, embryology, biochemistry, physiology, pharmacology, bacteriology, pathology, and internal medicine and surgery of the

heart as a unit, it is quite obvious that there is not enough time available in the curriculum to attack medicine from such a focal point.

There is this to be said in favor of listing course hours; practically all hospitals require the "Class Standing" of any applicant for an internship. Consequently, most university registrars wish to be able to calculate scholastic averages of students in their respective colleges on a grade point-hourly basis. There are also other times when quality credit points, in terms of course hours, times the grade attained, seem to be very necessary. For these reasons, the listing of course hours does seem to be pertinent and, as far as I am concerned, I believe they should be included.

XIV. Schedule of All Classes by Table

Similar arguments might be found on each side of the question relative to printing a schedule of classes for each day of the week. Interestingly enough, schools were also quite evenly divided on this subject—30 showing such a table of schedules and 41 not. It does seem logical not to fill every hour of every day with this or that subject. It would seem that this indicates spoon feeding to a greater extent than does the listing of course hours. However, the student must have some general idea of the course of work he is to take at various times during the week. It may very well be that many of the colleges who did not show a list of scheduled classes omitted them because they are constantly changing their curriculum and in presenting them in the catalog they would probably have to prepare new ones each fall to hand out to the students. If such is the case, it would seem to be a reasonably valid excuse. However, it is important that either the various courses with hours be listed or that the class schedules be shown, indicating at least, the name of the course for each of the four years in the medical school.

XV. Listing of Departments:

A. Personnel, B. Outline of course work.

As pointed out under "VII", 5 schools did not list the faculty, and, curiously enough, 3 schools did not list the various departments, which is in effect another way of saying the same thing except it becomes, in my opinion, a more serious omission. If school A does not wish to list either course hours or class schedules, I should think it only fair to expect that the departments be shown in A's school. It is true that there is a small minority in the field of medical education who feel that any departmentalization has a bad influence. These people would have only four branches of medicine; namely, structure, function, medicine and surgery. This is all very well if it is possible to operate on such a plan. However, the usual makeup of a university or college medical school is such that financially and administratively such a plan is difficult. Consequently, until the minority can prove their point conclusively, listing of departments should be included in the better format of a medical school catalog.

It is true that overdepartmentalization is dangerous, and very often the construction of a progressive curriculum may be hindered if it becomes too

great. However, in most instances, overdepartmentalization is due to the inexcusable bullheadedness of the head of a department, and if Professor X is such a person he should be replaced by someone who can give and take.

Of the 68 institutions which listed departmental staffs, all but 2 presented a brief outline of the course of each department. This was gratifying, since it gives evidence that these colleges are aware of such information. It is to be hoped that the brief description of courses noted is always carried out in principle, for, to say the least, some of the ideas presented were far ahead of the usual thinking of most instructors.

XVI. Names of Students Enrolled:

A. Students in residence; B. Hospital appointments shown.

A majority of the catalogs printed the names of their regularly enrolled students; only 14 failed to do so. Likewise, only 29 catalogs did not disclose the hospital appointments of the seniors previously enrolled. In some institutions which have very large enrollments, it is understandable that the inclusion of all these names does add considerably to the number of pages required in the catalog. However, this is a very useful procedure and one which merits favor with everyone who examines a catalog containing these lists. Hospital appointments are also valuable because they give an indication as to the trend of a medical school relative to internship training. I am convinced that inclusion of these two items is important enough that they should be present in all catalogs.

XVII. Index.

Only 25 catalogs contained an index. Failure to include an index is not nearly as annoying as failing to include the table of contents, but an index is very useful. An index of the names of the faculty and/or staff is very helpful because it allows those not familiar with any given school to ascertain the position and duties of any faculty member. It is my belief that it should be included.

One might philosophize that it is rather foolish to indicate that "so what if the medical student is not impressed with a catalog—all of us have too many applications now anyway." To me this is entirely beside the question because there is evidence that we will not always have such a large number of desirable students from which to select, and secondly, even if we do, I am confident that an outstanding catalog presentation will help to attract certain excellent students to the exclusion of certain less desirable ones.

An attempt has been made to analyze 17 important items in medical school catalogs and to give reasons pro and con, if such exist, as to the inclusion or omission. The data are summarized in the table. Obviously, all of the various data which may appear in a single catalog could not be covered in a paper of this magnitude. It is to be hoped that the information presented will be of some stimulus and may lead to the production and publication of better medical school bulletins.

In my opinion, the data have been covered as they should appear in the page sequence of a better medical school catalog. Obviously, there can be differences of opinion as to the order of presentation, but in studying the matter carefully, the main points outlined appear to follow one another in a logical and reasonable manner.

SURVEY OF 71 FOUR YEAR MEDICAL SCHOOL CATALOGS

	Included	Omitted
I. OUTSIDE COVER		
A. Volume number	34	37
B. Address	41	30
C. Date of publication	44	27
II. PICTURES OF SCHOOL	40	31
III. TABLE OF CONTENTS	56	15
IV. CALENDAR		
A. Monthly calendar	35	36
B. School calendar or schedule	71	0
V. BOARD OF TRUSTEES AND/OR BOARD OF REGENTS	56	15
VI. OFFICERS OF SCHOOL	66	5
VII. FACULTY	66	5
VIII. COMMITTEES	47	24
IX. GENERAL STATEMENTS		
A. Purpose	38	33
B. Historical sketch	51	20
X. REQUIREMENTS FOR ADMISSION	71	0
XI. REQUIREMENTS FOR PROMOTION	45	26
XII. REQUIREMENTS FOR GRADUATION	63	8
XIII. MEDICAL HOURS PER ACADEMIC YEAR	37	34
XIV. SCHEDULE OF ALL CLASSES BY TABLE	30	41
XV. LISTING OF DEPARTMENTS	68	3
A. Personnel	65	3
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XVI. NAMES OF STUDENTS ENROLLED		
A. Students in residence	57	14
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Birth of Anesthesia

Within the life-time of some of us a strange and wonderful thing happened on earth—something of which no prophet foretold, of which no seer dreamt, nor is it among the beatitudes of Christ Himself; only St. John seems to have had an inkling of it in that splendid chapter in which he describes the new heaven and the new earth, when the former things should pass away, when all tears should be wiped away, and there should be no more crying nor sorrow. On October 16, 1846, in the amphitheatre of the Massachusetts General Hospital, Boston, a new Prometheus gave a gift as rich as that of fire, the greatest single gift ever made to suffering humanity. The prophecy fulfilled—"neither shall there be any pain"; a mystery of the ages had been solved by a daring experiment by man on man in the introduction of anaesthesia.—(Wm. Osler: Man's Redemption of Man. Paul B. Hoeber, Inc.—New York. 1910, p. 17.)

Teaching Psychotherapy to Medical Students*

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In recent years, an increasing number of hours of the medical school curriculum have been devoted to psychiatry. However, in the vast majority of instances, specific provision has not been made for training in psychotherapy. As far as the teaching of medicine is concerned, it is not assumed that courses and case demonstrations in diagnosis equip the student to treat patients adequately. Separate courses in pharmacology and therapeutics are calculated to fill this need. The situation in psychiatry is completely analagous. Years ago courses in psychiatry consisted essentially in having students witness case demonstrations of psychotic patients. Occasionally, attempts were made to present, in theatrical fashion, some of the more flamboyant and exciting psychodynamics. More recently, students have been given an opportunity to examine and study patients with minor as well as major mental illnesses. There has been considerably more attempt made to elucidate the psychodynamics involved in such instances. In few schools, however, have students had an opportunity to learn firsthand about the actual conduct of psychotherapy. In some schools, they have received lectures on the subject and have been assigned reference reading. As far as we know, students in many schools have not been afforded a chance to sit in on psychotherapy in progress.

Since it is our belief that it is not possible to have an adequate appreciation of what actually goes on in psychotherapy without, at least, witnessing it, if not participating in it, we decided in 1947 to institute such a course in psychotherapy for the third year medical students at the Long Island College of Medicine.[1] This course was so planned as to give every student in the third year class a chance to sit in while the instructor conducted a therapeutic session with a neurotic patient.

While most of the students will not be psychiatrists, all of them are going to have to work with patients. Whether the student enters general practice, or any of the medical specialties other than psychiatry, he will deal with patients and their reactions to whatever illness they may have. Since there is not a valid definable line of demarcation between psychic and organic or bodily ills, every illness is viewed as having psychosomatic or somatopsychic implications. Thus, every student on graduation from medical school should be equipped with as much knowledge as can be given him concerning the proper way to conduct himself with patients in order that he may benefit

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[1] At a recent staff conference of a psychiatric clinic in New York, a psychiatrist described a particular therapeutic session he had just had with a patient. He described the content of the material elicited and invited discussion of the psychodynamics involved and the indicated therapeutic technique. Several staff members volunteered opinions and suggestions. Much lively talk and disagreement ensued. After about fifteen minutes of this, someone suggested that a recording of the therapeutic session be played back. This was done, with the result that the active discussants were taken aback. They had based their opinions and suggestions entirely on the report which came to them via the psychiatrist participant. The actual recording presented a different picture, with different implications. We might add, parenthetically, that a sound movie or direct witnessing would present an even more accurate picture.

them maximally. It is assuredly not possible in this brief course to give the kind of psychiatric training which would enable the student to perform deep psychotherapy. The students are informed of the various kinds of psychotherapy that are practised and an attempt is made to point out to them the kinds of psychotherapy which they may qualify themselves to perform.

Before describing the third year course in psychotherapy, we would like to describe as background the first and second year courses in psychiatry at Long Island.

In the first year, the students receive weekly lecture demonstrations which are planned to present them with the fundamentals of normal dynamic psychology. There is assigned reading. Patients are presented before the entire class. The lecturer attempts to bring out and demonstrate normal psychodynamics. After such presentations, the students are divided into groups of from 10 to 20 students each. Each group meets with an instructor, and ample opportunity is given to discuss what went on during the lecture and case presentation. Students are free to ask questions and to make comments. The instructor attempts to clarify for them what they witnessed during the plenary session. By the end of the first year, the students have a fair degree of knowledge concerning normal personality development.

In the second year a similar procedure is followed, but the stress is now on the psychodynamics involved in psychopathology. It is pointed out that this involves, for the most part, quantitative rather than qualitative differences as compared with the normal. Again, the students have the opportunity to discuss in more intimate groups what they have learned in the lectures and case presentations. Thus, by the end of the second year in medical school, the students are equipped with some basic knowledge concerning normal and abnormal personality development and psychodynamics. They are now prepared for the third year course in psychiatry.

During the latter six months of the third year at Long Island, the students have one month clerkships in medicine, surgery, obstetrics, pediatrics, specialties and psychiatry. Most of the teaching during the four week period devoted to psychiatry is done at the Kings County Hospital Psychiatric Division and the remainder at the Brooklyn State Hospital. Included in the clerkship is a course in psychotherapy. This course offers each student an opportunity to witness a demonstration of psychotherapeutic technique with one patient for four consecutive weekly sessions. He participates in a discussion of the psychodynamics and the rationale of the particular therapy employed. He also sits in and takes part during a description and discussion involving a second patient. Finally, there is a seminar on psychotherapy in general.

The sixteen students assigned to the psychatric clerkship are divided into groups of four each. Two of these groups meet for our course on Tuesdays from 9 to 12 a.m. and the other two on Fridays from 9 to 12 a.m. Thus, each student spends twelve hours in the course. In the first hour, Group I meets with the instructor and Patient A. During this period, Group II students have assigned reading in psychotherapy.[2] In the second hour, Group II meets

with the instructor and Patient B, while Group I has the reading assignment. In the third hour, Groups I and II meet with the instructor.

Before the groups are divided at the first meeting, the instructor describes to them the plan of the course. The content of this introduction is essentially as follows:

"In the outline of your four week clerkship, you will have noted the inclusion of lectures on general orientation in psychiatry, forensic psychiatry and the role and function of psychologists and psychiatric social workers. You will also note that there is to be a weekly case demonstration and seminar in child psychiatry, as well as demonstrations of the use of hypnosis, intravenous barbiturates and the various shock therapies. On the wards and in the OPD, you will have opportunity to examine patients and to discuss your findings with the instructors. Once a week, you will sit in in pairs while an instructor carries on psychotherapy with a patient whom he has had under treatment and whom he will probably continue to treat after you complete your clerkship there. He will bring you up to date on the progress of the case and will discuss with you the current data.

"In our present course, we shall attempt to present at least a smattering of what psychotherapy is all about. We do not expect for a moment that you will be expert psychotherapists after this four week course; but it is possible for you to learn some invaluable basic lessons here. By far the most important of these is how to relate yourself to a patient. This fundamentally important technique is essential to the good practice of medicine in any of its branches or specialties. Because of the importance of establishing rapport, we shall start with a patient none of us has seen before. Thus you will have a chance to observe the manner of establishing initial contact with the patient.

"We are interested primarily in this aspect of our demonstration. To be sure, we are interested in the psychodynamics of the case; our emphasis, however, is not on the dynamics per se, but rather on how we can use our knowledge of the dynamics to influence favorably the course of the patient's illness. Our major concern is what we can do to help the patient. Of course, it is necessary for us to understand the patient in order that we should know how to proceed to benefit him. However, we do not always tell the patient what we know or guess about him. This brings up the matter of different kinds of psychotherapeutic technique. Different problems require different solutions.

"Essentially there are two broad categories of psychotherapy; the uncovering techniques and the rest. The former include all analytic methods; that is, methods which are calculated to increase the patient's insight; his understanding of himself; his motivations and goals; the genesis of his personality development and present difficulties. The purpose here is to equip the patient with new knowledge about himself, to the end that he may recognize his mistaken appreceptions and may utilize his ego-strengths to correct them. In addition to this therapeutic aspect of the analytic methods, there is the benefit the patient derives in releasing repressed, emotionally charged material within the safe, accepting, understanding context of his relationship with the therapist. For example, the timid, blocked person may learn through direct experience in relationship with his therapist that he can express his deep, previously hidden feelings without danger to his security or self esteem. Later, he can begin to experiment cautiously outside the treatment situation to test out his new strength.

"Analytic methods require that the therapist have specialized training over a period of years. Thus, these methods are properly in the province of the specialist and are not to be used by nonanalytically trained physicians. These procedures are not without potential danger. Just as some one untrained to perform major surgery should not attempt it, so with psychoanalysis. Neurotic symptoms represent an attempt at solution of an inner conflict and as such they serve a protective defensive purpose. Abrupt removal of such symptoms, even where such might be possible, is contraindicated without a full awareness and evaluation of possible ill effects. The protective nature of the symptoms is analagous to the muscular rigidity, fever and leucocytosis in appendicitis. Severe anxieties, depressions, psychotic reactions, and even suicides may be precipitated by unskilled psychic probing.

"Do not be disheartened by all this. The fact is that only a small percentage of patients who can benefit by psychotherapy actually need psychoanalysis. There is far more need for minor procedures which the nonpsychiatrist physician can learn and utilize effectively. It is necessary for your purpose that you learn to use these instrumentalities and also that you learn

when to call for help. You can not know all there is to know concerning medical techniques; but you can know when you are beyond your depth in a particular instance.

"Methods of widespread usefulness which you can learn to employ include ventilation, desensitization, encouragement, reeducation, specific advice and direction, use of community agencies, etc. It will not be possible to demonstrate the use of all of these various techniques; but we shall try to show a number of them. Actually, the procedure which you will witness will be modified to meet the specific needs of this teaching situation. We shall see the patient four times, after which he or she will be transferred to another therapist. We must keep this in mind during our sessions, since it will affect what we attempt to do with the patient. We shall try to show you some fragments of analytic work so that you may have a first hand idea of how this is carried on. We shall try to indicate, where they are demonstrable, evidences of resistance, transference phenomena, identification and other psychodynamisms. For the most part we shall avoid discussion among ourselves during the therapeutic hour with the patient. Discussion will be reserved for the 11 to 12 noon hour, so make note of whatever you wish to bring up at that time.

"At 11 a.m. one of you will present to the group what took place during the session with the first patient and we shall discuss that case. Then one of you in the second group will present the material from the second case and we shall have open discussion about that and any matters you may wish to bring up concerning psychotherapy in general. Our orientation is that you are all going to be practicing medicine and dealing with people, so that whatever you can learn of their emotional reactions as well as their bodily responses will be helpful for you."

After the introductory talk one student is assigned in each group to take notes on the first sessions with the patients. The students take turns at this, in alphabetical order. The note taker of the day presents the material in the discussion hour. Each student has a chance to make a presentation and to start the general discussion. The patient is now brought before the group. We might here note that he or she is prepared by the psychiatric social worker for the fact that several doctors will be present during the session. The patient is told that these are young physicians who are interested in him and his problems to the end that they may learn how to help people with such problems. It is unusual that a patient objects seriously to this procedure, though some initial reluctance is common. Generally, the patient quickly establishes a relationship with the therapist and communicates with him, almost as if there were no audience.

The patients are chosen for our purpose by the clinic psychiatric social workers. They are instructed to attempt to eliminate psychotics, mental defectives and psychopathic personalities. It is also suggested to the intake workers that patients who are the more likely to speak freely will be best suited for demonstration. In some instances, in fact, the presence of the students is actually advantageous to the therapeutic process. An example is the use of the group to circumvent the patient's resistance. The therapist may address to the group remarks of a general nature which actually are meant not only for the students, but more particularly for the patient. We may generalize and give him the chance to particularize. The patient may be able to accept these remarks, addressed as they are to the group rather than to him, more easily than he would be able to accept a direct interpretation made directly to him. Also, the acceptance of the patient by the group may be more meaningful to him than acceptance by the doctor alone.

The treatment demonstration room is pleasant, comfortable, informal. There are no desks or swivel chairs, just upholstered sofas and chairs which

are arranged around the walls. The seating arrangement is planned so that the patient and therapist sit at right angles in one corner of the room. The four students sit around the room in quite informal fashion.

In the first session, the patient is encouraged to speak as freely as possible and to tell why and how he came to seek psychiatric help. An attempt is made to learn what the patient expects in the nature of treatment and as a result of treatment. The emotional atmosphere provided is one of expressed interest; a desire to help, an understanding acceptance, an absence of critical or moral judgment; in short, an empathic appreciation of the patient's position. Interpretation, explanation, direction, etc., are generally withheld at the first session; though occasional directive questions may stimulate constructive responses.

Since the purpose of the present report is to present a particular teaching method, a transcript of a therapeutic session would be superfluous. In the second and third therapeutic sessions, the therapist is more active in some cases than he would be if he were treating the patient in another context. The purpose of the activity here is to stimulate the patient in such manner as to precipitate demonstrable psychodynamic and therapeutic responses. In the fourth and final session, the concentration is on preparing the patient to consolidate whatever therapeutic gains he has made and on facilitating for the patient his transfer to another therapist for continued treatment, if such is indicated. Generally, a summing-up of the pertinent and significant data and recommendations is made.

In each instance where there is indication therefor, we ask in the psychologist and/or the psychiatric social worker to demonstrate how a psychiatric team operates on an outpatient level. In cases where it is considered therapeutically advantageous, we have the patient's marital partner, parents, or child come in for interview before the student group. The students learn that psychotherapy, in order to be effective, may involve dealing directly with those people who are closest to the patient. A more complete picture of the interaction between the patient and his environment is demonstrated in this way. Examples of environmental manipulation are shown.

Always, in the discussion period, an attempt is made to explain the whys and wherefores of what took place during the therapeutic sessions. This includes interpretation of the patient's responses in the light of what is known about him, as well as a statement of the reasons for the particular manner and questions or comments on the part of the therapist. The students are encouraged to present their observations. Wild conjectures about possible psychodynamics are discouraged. The tone is set in such a way as to evoke a recognition of the need to stick to facts, observable phenomena, and to make only tentative guesses concerning meaning, i.e., until such time as further productions provide evidence in substantiation of the hypotheses. No adherence to any single school's theory is practiced, though the general philosophy of the psychobiological method probably best describes what goes on. Wherever analogies with general medicine are apt, they are introduced, the

purpose being to tie together for the students their experiences in psychiatry and other branches of medicine. An attempt is made to teach the students to develop a kind of approach to patients which will be useful and helpful no matter what particular illness the patient may be suffering from.

SUMMARY—A method which we have evolved for teaching psychotherapy to medical students has been presented. It has been interesting and most gratifying to observe the change in attitude toward psychiatry and psychotherapy among those students who came to their clerkship with a distrustful, aggressively challenging or supercilious attitude. A number of them volunteered comments reflecting this change. This aspect of the matter is of great importance. If the student can actually witness a favorable response to psychotherapy, he will be a better doctor for it. He will have learned a proper respect for the patient as a person. If possible, every student should have such an opportunity. As one student put it, "I had heard a lot about results in treatment; but nobody showed us any. Now that I've seen a patient respond, it's real to me."

We believe that the procedure described has certain merits which would make it applicable as a teaching method on a postgraduate as well as a medical student level. There cannot be an adequate substitute for actual participation, even if that is only passive. Resident psychiatric training could well include far more training in the practice of psychotherapy than is now offered. In fact, until quite recently, the psychiatric resident received very little training in psychotherapy of any kind unless or until he undertook psychoanalytic training. In some instances, he was given an opportunity to work in the mental hygiene clinic, but he received little or no instruction there. Two noteworthy projects which presage further growth in training facilities in addition to expanded facilities for analytic training are the University of Minnesota pilot course and the establishment in New York of a postgraduate training center for psychotherapy. Here a variety of courses, including demonstration of a variety of psychotherapeutic techniques is offered.

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Check Studies on the Predictive Value of the Medical College Admission Test

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INTRODUCTION

The present studies were undertaken to check, on two additional samples of medical students, the results in earlier investigations on the Professional Aptitude Test reported by Young and Pierson and by Ralph and Taylor.[1] On October 30, 1948, this test was renamed the Medical College Admission Test, but apparently no major revisions were made in the test at that time. The two present studies entail an evaluation of the 1947 and 1948 forms of the test as predictors of medical academic success.

The criterion chosen as the measure of academic success was the grade point average over the first portion of medical training. The procedure in the studies was relatively simple and straightforward,—namely, to calculate means and standard deviations for the subscores of the test and to determine the correlations between the various subscores and the criterion on each class of medical students. These statistics were computed on only the students who had been selected for medical training simply because no measure of medical academic success was available for rejected applicants.

The first study was on the 1948 freshman class and the criterion used was the grade point average for the entire freshman medical year. Since 9 students had taken the 1947 form of the test, it was decided to find the results first on only the 42 students who had taken the 1948 form and then to combine these two subgroups in order to determine the results on the total class of 51 students. In increasing the size of the sample in this fashion, it is assumed that the 1947 and the 1948 forms of the Professional Aptitude Test are relatively parallel. The statistics found for these two groupings of students are presented in Table 1.

In the second study on the 1949 freshman class of 53 students, 45 students had taken the 1948 form, named the Medical College Admission Test, and 8 students had taken the earlier 1948 form, called the Professional Aptitude Test. The means, standard deviations, and validity coefficients for the subtests computed on the 45 students and also on the total class of 53 are listed in Table 2. Since final grades were available for only the first quarter's work at the time of the study, the criterion used was the grade point average in the first medical quarter, based on marks in gross anatomy, histology, and a two hour statistical course in public health. Although a criterion covering more medical training would have been preferable, the use of this criterion

1. YOUNG, RICHARD H. and PIERSON, GEORGE A. "The Professional Aptitude Test, 1947, a Preliminary Evaluation," J. A. A. M. Coll. 23: (1948), 176-179; and RALPH, RAY B. and TAYLOR, CALVIN W. "A Comparative Evaluation of the Professional Aptitude Test and the General Aptitude Test Battery," J. A. A. M. Coll., 25: 33-40, 1950.

in a check study was felt to be justifiable because of the several preceding studies based usually on a longer training period and because Young and Pierson reported that the combined first quarter grades in gross anatomy and histology correlated quite high (.80) with the grade point average earned by 82 students at the time of graduation from or interruption of medical training.

TABLE 1.—STATISTICS ON THE PROFESSIONAL APTITUDE TEST FOR THE 1948 FRESHMAN MEDICAL CLASS AT THE UNIVERSITY OF UTAH

Score	Mean		Standard Deviation		Validity Coefficient	
	PAT 1948 Form, N= 42	PAT 1947 and 1948 Forms, N = 51	PAT 1948 Form, N = 42	PAT 1947 and 1948 Forms, N = 51	PAT 1948 Form, N = 42	PAT 1947 and 1948 Forms, N = 51
Scientific Vocabulary	576.9	571.2	87.5	87.1	.200	.223
Social Vocabulary	501.7	508.8	75.8	76.9	.006	—.031
Humanistic Vocabulary	501.4	507.1	78.8	74.8	.017	—.033
Verbal Ability	529.3	532.2	71.8	69.9	.101	.071
Quantitative Ability	510.2	518.2	79.8	82.3	.303	.198
Index of General Ability	525.5	529.8	71.6	70.4	.191	.137
Modern Society	520.7	*	76.8	*	.097	*
Premedical Science	587.9	588.0	62.8	65.8	.228	.185
Criterion: (Grade Point average for Freshman medical year)	1.687	1.616	0.468	0.477	.....	.....

*The Modern Society subtest was not a part of the 1947 form of the Professional Aptitude Test.

TABLE 2.—STATISTICS ON THE MEDICAL COLLEGE ADMISSION TEST FOR THE 1949 FRESHMAN MEDICAL CLASS AT THE UNIVERSITY OF UTAH

Score	Mean		Standard Deviation		Validity Coefficient	
	MCAT 1948 Form, N = 45	PAT and MCAT 1948 Forms, N = 53	MCAT 1948 Form, N = 45	PAT and MCAT 1948 Forms, N = 53	MCAT 1948 Form, N = 45	PAT and MCAT 1948 Forms, N = 53
Scientific Vocabulary	535.4	549.2	68.5	72.6	.309	.189
Social Vocabulary	519.4	521.0	73.9	72.2	—.160	—.218
Humanistic Vocabulary	513.9	521.8	82.8	85.8	—.075	—.142
Verbal Ability	527.4	535.9	66.0	66.6	.022	—.077
Quantitative Ability	571.2	569.7	97.7	91.0	.268	.272
Index of General Abiilty	539.9	546.1	65.7	63.9	.112	.034
Modern Society	510.6	515.8	72.5	71.8	.114	.005
Premedical Science	586.3	583.1	62.8	66.1	.243	.252
Criterion: (Grade Point Average for 1st quarter of Medical College)	1.948	1.906	0.516	0.500	.....	.....

Results and Recommendations

From the results presented in the two tables, it seems evident and also appropriate that some subscores of the test were given considerably more attention than others in the process of choosing medical students at the University of Utah. For example, in every case the means were high and the standard deviations low on the Premedical Science subtest, thus indicating a highly selected sample on this particular measure, or, in other words, a range of scores largely restricted to the upper end of this scale. On the other hand, for another subtest with a mean near 500, it could not be said in the

same way that the sample was highly selected; at least, the scores on this second subtest did not fall mainly along the upper end of the scale, but instead were fairly well spread out not only above but also below 500.

As reported in the studies previously cited, the validity coefficients for the various subtests were generally low and, in several cases, were essentially zero. Once again, the validity coefficients for the composite scores, Verbal Ability and Index of General Ability, were smaller than the validities of at least one part of each composite.

In viewing the results in terms of the characteristics of the sample studied, one can notice that the subtests which gave some indication of validity were very frequently those showing the greater restriction of range. For subtests that had approximately zero validities and means near 500, it would, indeed, be difficult to try to argue that the lack of sizeable validities could be attributed to restriction of range in the sample.

When the number in the sample was increased by adding students who took a parallel form of the test, the size of the validity coefficients changed slightly, with nearly all of the shifts being either toward zero validity or toward a higher negative validity.

In summary, the results of these two studies tend to substantiate the findings in earlier investigations that the validities were usually quite low across the subtests. To date, on five samples of medical students from three universities, many of the subtests have shown little evidence of being valid as predictors of medical academic success.

It may be possible, however, that these subtests are valid for some desirable purpose or purposes other than the prediction of medical academic success. If some of the subtests were developed for other purposes, it would be advisable to define these purposes clearly so that studies could be designed to determine how well the subtests achieve these other goals.

After the Medical College Admission Test has been evaluated in terms of these other purposes, any subtests that have given little indication of validity for any purpose should be eliminated from use and efforts should be intensified to develop instruments and procedures that do show high validity for the purposes desired in the medical college selection program.

A Short Answer Type of Examination in a Course on Preventive Medicine and Public Health in a College of Medicine

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Whether or not we like it, examinations appear to be a necessary feature of the educational system, and also are needed to measure and maintain professional standards. This being true, it is imperative that methods be utilized which will provide a fair basis on which the candidate's knowledge and preparation may be judged.

Ideally, such examinations should test the individual against basic and uniform standards. We weigh people in pounds or kilograms. We measure their height in definite terms. But when we come to examinations of knowledge and skill, all too often we compare the individual with the attainments of others who are taking the same examination. In fact, in some liberal arts colleges, it is customary to grade on curves, regardless of the fact that there may be a selective process involved in arranging the subgroups of a large class. That does not make any difference, apparently, for the instructions in one university state:

"The suggested distribution of grades for large numbers of students is as follows: A, 7 per cent; B, 23 per cent; C, 40 per cent; D, 23 per cent; Failure and Incomplete, 7 per cent."

Medical students, however, are a selected group. To be eligible for consideration by a first class medical school, they must have shown in their liberal arts studies the ability to maintain at least a C average. To be actually selected for admission, at the present time in most schools, they have little chance unless their liberal arts grade average has been above or fractionally close to the B level. Under such a situation, there may be good and better medical students, but judged by any reasonable standard, there can be very few really poor students among them.

In our tests of their knowledge and ability, we should be able to measure such qualifications in absolute rather than in comparative and competitive terms. When grade curves are plotted, we should expect and be pleased to find the curves skewed to the left. The bulk of these students should be in the A and B groups. If this is not the case, then there must be something wrong with our methods of instruction or with our methods of examination. Of course, there will always be a few misfits and loafers who will and should fall by the wayside.

The difficulty lies in devising testing methods which will cover a field thoroughly rather than by spotty selectivity, which will not weight errors more

heavily than they deservedly rate in the field as a whole, and the results of which will be uninfluenced by the subjective state of the instructor who reads the papers. The grades awarded to the papers should be approximately the same when read by several competent instructors.

After trying out completion, essay, true-false, and multiple-choice types of examinations, I began, in 1933, to experiment with a short answer type. I was led to do so by noting that in reading hundreds of papers of the essay type, I found myself looking for key words and key sentences rather than reading every single word in the oftentimes almost illegible scrawls of hastily written papers. If these key words or sentences were present, one could see at once whether or not the answer included the subjects which were rightfully expected. If one looks for key words and sentences, why require the student to write madly the hundreds of connecting words? Incidentally, why require the examiner to read them? Why not build questions in such a way that only the key words or sentences need be written? If this is done, and proper weighting of these answers is worked out, the grades won by the papers will vary little when read by various members of the staff.

Because the student is spared the necessity of wasting time in writing useless words, he should have more time in which to study the question and think about it. Thus, he may be able to face a situation which is proposed to him for the first time in the examination, and can work out a suitable and acceptable application of his basic knowledge. The test, therefore, need not be merely a test of memory, but should also be a test of ability to apply knowledge.

Because short answers are expected, the method enables the examiner to cover an extensive field directly or indirectly. The first example to be cited will illustrate this. The student preparing for such a test will review the entire field instead of wasting time trying to outguess the instructor as to what questions will be asked. He can be certain that practically all aspects of the subject will be probed.

In 1938, Dobbie[1] published an excellent paper in this journal in which he described a type of examination which appears to be similar in many respects to the type under discussion. The present article is intended to call attention again to Dobbie's paper, and to show how that type of test has been used in at least one department of preventive medicine nd public health.

In essence, the method presents to the student a given situation, followed by a series of questions, each answerable in from one to five lines, although in instances, from ten to fifteen lines may be allotted. These lines form a part of the test paper itself and the student is supposed, but not required, to limit his answer to the space provided. This he can do, usually, if he will think about the subject before starting madly to scribble his answer. If he desires to write an extended answer, he may do so on the back sheets.

The course in preventive medicine and public health in which this method was used included a total of 66 clock hours. The emphasis of the course was

distributed approximately 60 per cent to preventive medicine and 40 per cent to public health.

The spread given to a particular series of questions depends on the content of that part of the course covered by the test concerned. In the department mentioned, it has been customary to hold four written tests on the progressive plan.

To conserve space, the examples to be cited indicate, in parentheses, the space allotted for the answer to each particular question.

EXAMPLE NO. 1: ACUTE ANTERIOR POLIOMYELITIS

During the current year, more than 1,000 cases of acute anterior poliomyelitis have been reported in this state. Some of these cases you have seen in the Isolation Ward.

1. By whom is this disease reportable? (1 line)
2. To whom is it reportable? (1 line)
3. Through what official channels do these reports pass:
   (a) At the local level? (1 line)
   (b) At the state level? (1 line)
   (c) At the national level? (1 line)
   (d) At the international level? (Name two official international health agencies now actively functioning?) (2 lines)
4. What is the causative agent in acute anterior poliomyelitis? (1 line)
5. In what way or ways may this etiologic agent leave the body of the infected patient? (2 lines)
6. In what material or medium (outside of the human body) has this etiologic agent been found? (3 lines)
7. After a case of acute anterior poliomyelitis has been diagnosed and removed from the home to a hospital, what restrictions (if any) are applicable to the other members of that household who may have been there while the patient was ill? (5 lines)
8. Several of these cases have occurred in a trailer camp provided with septic tanks, the effluent of which drains into a creek which empties into the river approximately 3 miles above the intake of a city water plant. The amount of this pollution is actually very small. The Rules and Regulations state with reference to poliomyelitis "reliable evidence of spread by water supply is lacking." It is quite possible although improbable that the etiologic agent of poliomyelitis *may* be at times a contaminant in the river water as it reaches the plant. At least the public fears that this may be so. Let us assume for the moment that it is so.
   (a) At the water treatment plant certain processes which are designed to remove suspended matter or turbidity from the crude water may also remove the pathogenic agent in question. What are these processes? (5 lines)
   (b) Certain chemicals added to the water in the treatment plant are designed to destroy any living agent therein, or effectually to inhibit its growth.
      1. What chemical substance is commonly used for this purpose in municipal water supplies? (1 line)
      2. What residual concentration of this chemical is considered desirable in the water as it comes from the tap at the home of the consumer? (1 line)
9. Despite the many attempts to secure success, the Rules and Regulations state concerning poliomyelitis:
   "Immunization: None."
   (a) Explain what is meant by "active" and "passive" immunity. (10 lines)
   (b) Suppose that you would like to attempt experimentally to set up a state of "passive immunity" in a person exposed to poliomyelitis, what materials would you use? (2 lines)
10. If you are the physician in charge of a patient at the time of his death from acute anterior poliomyelitis, you are legally obligated to supply certain information on the death certificate.

(a) What type of information must the attending physician supply? (3 lines)
(b) Where is the death certificate filed? (1 line)
(c) By whom is it filed? (1 line)
(d) For what immediate purpose is the death certificate required? (2 lines)
(e) List five values of a duly filed death certificate. (5 lines)

11. Give the mathematical formulae whereby the following can be calculated for a given population from data derived originally from the death certificates applicable to that community:
(a) Crude death rate (1 line)
(b) A specific death rate (Indicate in what way the rate which you describe is specific.) (3 lines)

12. When the onset dates of cases of acute anterior poliomyelitis in this state are plotted on graph paper by weeks, months and years, certain patterns tend to appear which have epidemiologic interest and which may have epidemiologic significance. What pattern or patterns are observable? (8 lines)

13. State definitely 5 proved facts concerning this disease which either point toward or have a definite bearing upon the ultimate solution of the problem of its mode or modes of spread. (15 lines)

14. In paralytic types of acute anterior poliomyelitis there are oftentimes involved prolonged hospitalization, special nursing, special treatments and later problems of rehabilitation. These may be beyond the financial reach of the patient or family. What provisions are made for such cases:
(a) Under the laws of your state?
(b) By other agencies? (15 lines)

EXAMPLE NO. 2: RADIOACTIVITY

Experimental work on a rapidly increasing scale is now developing involving the employment of radioactive substances, in the use of which certain actual or potential hazards may exist.

1. As used above, what is meant by the expression "radioactive"? (5 lines)
2. As understood in this field, what do the following terms connote:
(a) Alpha particles (3 lines)
(b) Beta particles (3 lines)
(c) Gamma rays (3 lines)
(d) Neutron (3 lines)
(e) Electron (3 lines)
(f) Proton (3 lines)
(g) "Half-life" (3 lines)
(h) Millicurie (3 lines)
(i) Roentgen (3 lines)
(j) Isotope (3 lines)

3. Compare the fundamental problems involved in the safe handling and safe disposal of:
(a) Na_{24} (Half-life 15 hours, strong *Gamma* and *Beta* emission) (5 lines)
(b) C_{14} (Half-life approximately 5,000 years; weak *Beta* emission) (5 lines)

EXAMPLE NO. 5: MISCELLANEOUS

What potential hazards to personal or public health may be involved in the following:

1. The use of a selenium compound effective as an insecticide for the control of the Pacific mite and the citrus red spider? (5 lines)

2. The breaking, accidental or otherwise, of a fluorescent lamp bulb in the home? (This applies to bulbs manufactured prior to 1949) (5 lines)

3. Working (for example, at a city dump) handling soil or materials which have been badly contaminated with the urine or feces of rats? (5 lines)

4. The overnight washing of pathological specimens in a container which receives water via a rubber tube attached to a water faucet in a hospital laboratory (the lower end of the tube reaching to the bottom of the container)? (10 lines)

5. Drinking an eggnog made out of duck eggs? (5 lines)

6. Picking ticks from a dog (using the bare fingers)? (5 lines)

EXAMPLE NO. 4: MISCELLANEOUS

Man may be attacked by certain pathogens of which other animals are the primary reservoirs. A recent series of patients contracted such infections in this or an adjoining state, under the circumstances to be mentioned. For each of the following:

(a) Name a disease of animal origin contractable in the middle western states
(b) Name an animal which may have been involved
(c) Give a probable mode of transmission to the victim
(d) Use a given disease only once

The infection was received under the following circumstances:

1. While spending a day in the woods (3 lines)
2. While employed in removing debris from a sewer main (3 lines)
3. While eating lunch at a wayside lunch room (3 lines)
4. While engaged in a day of hunting (3 lines)
5. Without leaving his own house (3 lines)
6. While walking down the street near home (3 lines)

These sample questions illustrate some of the ways in which the method has been used to probe in many directions. In a given examination, one long question and several questions of a limited scope are used to cover the work for that period. When possible, questions are based on some actual situation which we ourselves have faced or are facing, and in which we have been called on to express an opinion or to make a decision. Thus, there is a realism to these tests which seemingly adds to their value for the student. They may be facing the stated problem for the first time at the examination, but they have time to think and usually can come up with a reasoned and reasonable answer on the basis of principles in which they have received instruction. As a matter of fact, the student's answer may be as reasonable as the one in the mind of the man who prepared the question. If so, and if supported by clear reasoning, the student's answer is accepted fully.

In weighting the individual questions, it is not necessary that the total points on any given examination amount to 100. If the final grades for the course are to be expressed in percentages, it is advisable that this total be a multiple of 100. This makes it easier to combine the final proportional values for the course which are to be allotted to written and practical tests.

When the final combined figure is reduced to a percentage basis, the errors made in answering individual questions are brought automatically into relation with the course as a whole. This is fair enough because by the time the course is completed the student, without doubt, knows by what he considers the hard way any blunders he may have made enroute. In later life he is not likely to repeat them.

The chief difficulties experienced with this type of written examination are the following:

1. Drafting the questions clearly yet without indicating the expected answer. This is a very difficult problem to solve.

2. Devising new questions each year. The medical fraternities no doubt have copies of all previous examinations in their files. In examinations which probe in all directions, how can one ask new questions which are valid? However, if the students study to answer all of the questions in their files,

they should know the subject pretty well by that time. We attempt to overcome this by changing the point of view of the questions from year to year. When based upon actual cases, the important points of interest vary somewhat. New materials introduced into the course afford opportunity to vary the content of the questions. Nevertheless, over a period of years, the same questions tend to crop up just as they do in any other type of examination. Whether the students know a subject by thorough study or by cramming, is difficult to ascertain by any type of written test.

3. Persuading the students to read the questions carefully and to answer them thoughtfully. If they are not sure of themselves they may attempt to make the examiner read into their answer more than they express. Some of them are very clever at this.

It is necessary at the beginning to give them a little prior discussion as to this particular type of examination to prevent them from starting to scribble at the moment the papers are handed to them, or they may miss the point entirely. They get along better at the second examination usually.

RESULTS

Grades of 753 Junior Medical Students: 1940-1949	Number	Per Cent
1. Entered medical school with Liberal Arts grade average of 3.0 or more	304	40.0
2. Grade average for all subjects in Junior medical year (Based upon written and practical examinations. Written examinations included all of the usual types)		
B or more	339	43.7
C	330	45.2
D or less	84	11.1
TOTAL	753	100.0
3. Final written grade in Preventive Medicine and Public Health (Junior year. Short answer examination used exclusively)		
B or more	399	53.0
C	319	42.4
D or less	35	4.6
TOTAL	753	100.0

Discussion

Although the results tabulated under items 2 and 3 above are not directly comparable, it would appear that the short answer type of examination administered to this group has been advantageous to the students in the results thereof. This advantage may be due to various factors, among which are the following:

(a) *The large number of questions asked.*—This reduces the chances that the examiner will select questions which the student happens to be unable to answer satisfactorily.

(b) *The lowered weighting of individual questions.*—The student is certain to miss some of the questions, but the weighting for each question is considerably less in this type of a test so that errors are not so expensive in grade

points. Furthermore, as has been pointed out, in a series of progressive tests, the penalty for errors is appraised in reference to the course as a whole.

(c) *More objective grading.*—By centering the question upon some particular phase of a subject, the problem of grading is much simplified.

(d) *More lenient grading* (?)—This type of examination cannot readily be adapted to mechanical grading. The papers must be read and appraised by someone. It could be true that the grading here reported has been more lenient than it would have been in other types of tests. However, the reverse could be true. We must all admit that when reading 50 to 100 difficultly legible essay examinations, our subjective state tends to be affected by other things than factual errors. There are times when we must combat in ourselves feelings of disgust or perhaps even of hostility when we see mistakes in spelling or grammar, slang, wisecracks, etc., which in reality have nothing to do with the answer. They do influence our opinion of the paper as a whole and of the qualifications of the writer of the test, unless we are constantly on our guard.

In other courses, this department makes use of short answer, multiple choice, completion and occasionally an essay type of test. Of these, the short answer is considered to be a superior type, and preference is given to it where the subject matter makes its use feasible.

SUMMARY

1. A short answer type of examination is described and illustrated by several examples applied to the field of preventive medicine and public health. A similar type was described and illustrated by Dobbie in 1938.

2. Under this type of examination an attempt is made to make appraisals on an absolute rather than a comparable basis, each student receiving exactly what he earns regardless of the attainment of his fellow students.

3. Under such a system, of the students examined during the past ten years, 53.0 per cent of the group received a grade of B or higher and 4.6 per cent received a grade of D or less. In my opinion, this distribution is what should obtain in a selected group such as the medical students represent.

REFERENCE

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Britain's Medical Research Council

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The Medical Research Council is the expert body appointed by the United Kingdom Government to administer the funds provided annually by Parliament for the promotion of scientific research in medicine.

The Council was originally established in 1913, as the Medical Research Committee. In 1920, it received its present title and constitution; at the same time it became subject to the formal direction of the specially appointed Committee of Privy Council for Medical Research. The members of this Committee are the Lord President of the Council as chairman, the Minister of Health as vice-chairman, and the Ministers in charge of the other principal Government Departments concerned with questions of public health in Britain or in the Crown Colonies.

The Research Program

The program supported by the Medical Research Council is not concerned exclusively with studying the nature and causes of disease, and with devising improved methods for its prevention, diagnosis, and treatment. It deals also with the fundamental sciences of medicine, such as physiology, biochemistry, biophysics and genetics; with the maintenance of human well being, mental as well as physical; and with physiological and psychological reactions of the normal human being to his work and environment. It may deal, indeed, with almost any question involving the human factor.

The Council and Their Advisory Committees

The Council consists of twelve members, three lay and nine scientific, with a secretary and other administrative officers. From 1934 till September, 1949, the secretary of the Council was Sir Edward Mellanby, whose own researches on rickets and other diseases are well known. He has now been succeeded by Dr. H. P. Himsworth, formerly professor of medicine at University College Hospital, London. The members of the Council are appointed by the Committee of Privy Council, in the case of the scientific members after consultation with the president of the Royal Society and with the Medical Research Council themselves. They retire in rotation at regular intervals, and the aim is always to ensure that the council comprises a body of distinguished experts with first hand experience of research.

To advise it in the promotion of research in special branches of medical science, the Council has the help of about fifty expert committees. These may deal with subjects of lasting interest, such as chemotherapy, vitamins, the problems of the deaf, or with more temporary questions, such as the clinical

trial of a promising new drug. A committee of special interest is the Colonial Medical Research Committee, appointed jointly by the Council and Colonial Office, to direct work on tropical diseases and on nutritional and other questions affecting the health of colonial peoples. In planning research on problems of industrial well being and efficiency the Council has the assistance of the Industrial Health Research Board, which has the status of one of their committees.

The Medical Research Council enjoys a high degree of autonomy, being responsible only to its directing committee of Ministers and to Parliament for the proper expenditure of the grant-in-aid. This relative independence of the Council illustrates an important principle, long accepted in Britain, that the detailed allocation of money for scientific research is best entrusted to an expert body of scientists, with only a modicum of lay help.

The Council naturally works in close association with the administrative Government departments on matters of common interest. Indeed the Council is required to advise these departments on health problems within their sphere and to undertake such new researches as may be necessary for this purpose.

THE COUNCIL'S RESEARCH ESTABLISHMENT

The Council's central research laboratories comprise the National Institute for Medical Research in London, whose Director is Sir Charles Harington. The research problem here is very wide, falling under the general headings of physiology, pathology, biochemistry, pharmacology and chemotherapy, endocrinology, and physics in relation to medicine. Diseases recently under intensive study have been influenza, the common cold, malaria and (during the war) the typhus fevers. A special responsibility of the Institute is to maintain standard preparations for the biological assay of certain drugs, hormones, vitamins, and, antitoxins. This is done in many instances on behalf of World Health Organization. Another institute wholly maintained by the Council for laboratory research is the Dunn Nutritional Laboratory at Cambridge.

Obviously, in any organized program of medical research, prominence must be given to the study of clinical problems of disease and injury as seen in patients. To this end, the Council has long maintained, wholly, or in part, special departments for clinical research in medicine at two London teaching hospitals and at a hospital for nervous diseases. More recently, it has set up a number of further research establishments in London, including centers for the study of ear and eye diseases, for research on the radiotherapy of cancer, and for the study of industrial illnesses and toxicology. Units for research in human nutrition and in dental disease have also been established in London. Research on industrial injuries and skin diseases is carried out in a unit at Birmingham, and in South Wales occupational lung disease in the coal miners is being studied. At Cambridge, the Council has established an applied psychology research unit and a department of experimental medicine. Other research units of the Council in London and elsewhere in Britain are concerned with chemotherapy, the vitamins, endocrinology, microbiology and

cell metabolism; with blood grouping and the therapeutic use of blood derivatives; with electromedical and biophysical problems; and with industrial physiology, occupational psychiatry, and social medicine. This list is by no means complete but it will serve to indicate the varied scope of the Council's research activities. At the present time the Council supports about forty such research units.

Grants For Research

At the National Institute for Medical Research, and at its other research establishments, the Council employs a whole-time scientific staff, including many medical men and women. While the greater part of the funds at the Council's disposal is thus devoted to the support of work within its immediate control, an important fraction is expended annually in the form of temporary grants made in aid of approved researches by independent investigators at Universities, hospitals, and other institutions throughout Britain and on occasion overseas.

In addition to its primary function of supporting medical research, the Council during the war period undertook various executive functions on behalf of the Ministry of Health, such as the establishment of Blood Transfusion Depots, and of an Emergency Public Health Laboratory Service to augment the existing public health services in combating epidemics of infectious disease. The success of the latter arrangement was such that the Service (now known as the Public Health Laboratory Service) is being continued in peace-time, to carry out nation wide research on problems of public health and epidemiology.

Triumph of Greek Thought

Man's redemption of man is the great triumph of Greek thought. The tap-root of modern science sinks deep in Greek soil, the astounding fertility of which is one of the outstanding facts of history. As Sir Henry Maine says, "To one small people . . . it was given to create the principle of progress. That people was the Greek. Except the blind forces of Nature nothing moves in this world which is not Greek in its origin." Though not always recognized, the controlling principles of our art, literature and philosophy, as well as those of science, are Hellenic. We still think in certain levels only with the help of Plato, and there is not a lecture room of this university (Edinburgh) in which the trained ear may not catch echoes of the Lyceum. (Wm. Osler: Man's Redemption of Man. Paul B. Hoeber, Inc.—New York. 1910, p. 7.)

Report of the National Society for Medical Research*

DR. VICTOR JOHNSON: Three years and four months ago, the National Society for Medical Research came into being. It was conceived and sponsored by the Association of American Medical Colleges, from which it has also derived its main support. The Society was established to conduct a positive program of education to immunize the lay public against the false propaganda of the antivivisection cult, and to assist medical institutions to free themselves from the impediments to research provided by antivivisectionists and an uninformed public.

The Society's program so far has been amazingly successful.

1. LAY REPORTING OF MEDICAL DISCOVERIES

At the outset the Society sought to obtain more matter-of-fact reporting of the "how" of medical discoveries. The Society sought to tell about the role of animals in research so often that no one in America could escape the conclusion that living creatures must be studied in the life sciences. The Society approached this problem not as a publicity agency but rather as a policy-making agency. It was obvious that the Society's small staff never could produce the flood of medical news necessary to accomplish its purpose. Therefore, the Society set out to modify the policies and methods of medical news reporting at all levels.

The Society urged scientists to accept the important responsibility of telling the public about the employment of animals in their work. The Society conducted forums on medical news reporting for college and hospital public relations personnel. And the Society worked with science writers and free-lance authors to sell them on telling the "how" in all their stories. The results have been spectacular. The number of newspaper clippings giving favorable matter-of-fact accounts of animal experiments increased 3,000 per cent, and it became too expensive to continue the clipping service except on a restricted basis.

In effect, this policy selling program has enlisted allies, strategically located, equivalent to a staff of several thousand. It should be stressed, however, that the Society's selling task in this area is not complete, since many colleges and research institutions are not yet fully exploiting their opportunities for public education.

It is our hope that we can so firmly establish sound policies on medical news reporting that matter-of-fact education on the methods of medical science will go on no matter what happens to the National Society for Medical Research.

2. RETREAT OF ANTIVIVISECTION

In recent months there has been evidence that the offensive of the Society is entering a new phase, because of a beginning retreat of antivivisection from the position of frankly opposing animal experimentation to a position of less direct opposition. Antivivisection leaders no longer admit that they are antivivisectionists at legislative hearings for fear of labelling themselves crackpots. Surveys have shown that direct opposition to animal experimentation comes largely from people who oppose medical care in general. This group is very small and apparently intractable. There probably remain only a few potential converts to be made on the general question of animal experimentation.

A larger issue today seems to be: What should be done with unwanted dogs? We believe, of course, that such animals should not be uselessly destroyed in the gas chambers of public pounds. We believe that these animals should serve as experimental subjects. Not only would such a policy be more conservative of animal life, but it would stretch medical college budgets and expedite both teaching and research.

Unfortunately, public opinion is not so clear-cut on this issue of the use of unwanted pound animals. Many persons who are not antivivisectionists aid and abet the opposition

*This report was presented at the Sixtieth Annual Meeting of the Association of American Medical Colleges held in Colorado Springs, Colorado, November 7-9, 1949.

due to misunderstanding. For example, one nationally famous medical administrator unwittingly defeated a proposed state pound law this spring by saying at a public meeting, "I don't believe that pets should be taken for research purposes."

3. TEAMS TO ASSIST LOCAL CAMPAIGNS

In the coming year, the Society proposes to direct its major efforts toward meeting the issue of the disposition of unwanted dogs. To implement this goal, the Society is prepared to move members of its staff into localities in which this question is at issue. This direct staff assistance is, therefore, available to you upon your request, within the limits of our financial resources. The staff persons might serve as secretaries in local campaigns, working under the direction of and exclusively through your local leaders. In this way the skill and the procedures proved in previous local campaigns become available in many other local campaigns. This should be more effective than the employment of uninitiated persons, which inevitably involves some misdirection of effort.

I would like to have your reaction to this proposal. Do you not believe that such an arrangement would be more efficient than the procedure we have followed in the past? Would this not give more security to institutions in troubled areas? Should we not regard the Society's staff as an experienced team which could move from place to place as a task force to protect medical institutions and to implement positive campaigns? This arrangement will cost the Society some additional funds. Perhaps the institutions directly affected could pay at least part of these extra expenses. We believe they would still save considerable money.

4. LEGISLATION AND LEGAL ACTION

The 1949 legislative season saw the antivivisectionists on the defense throughout America for the first time. The cultists were so busy defending their position against positive legislation that they made no effective effort in behalf of restrictive legislation. Favorable pound laws were passed in Minnesota and Wisconsin, and Cleveland joined the 26 other major cities providing pound dogs for research. Positive laws were stalled or voted down in five states, but even these defeats were reversals in an offensive initiated by us. Now, the status quo remains even after defeat; too often in the past, the preservation of the status quo required a hard-won victory. The offensive is in our hands.

The Society is sponsoring libel suits for amounts totalling $3,200,000 against William Randolph Hearst. The prospects of victory are promising. The Society is seeking still other clear-cut cases of libel of medical scientists by the antivivisectionists. Please give us the opportunity to use such instances as may come to your attention to force the antivivisectionists to abondon their policy of irresponsible, slanderous falsehood.

CONCLUSION

In this brief verbal report I have deliberately omitted details of the many specific day-to-day activities of the Society. These are outlined in the printed annual report, a copy of which you have received. I have been concerned primarily with reporting some trends in the Society's work. The tireless efforts of Doctors Carlson and Ivy could not be purchased by money. In highest terms, I commend also the staff of the Society. Under the leadership of Mr. Ralph Rohweder, the staff continues to display an amazing degree of imagination, industry and vision. The National Society for Medical Research is supported financially by nearly every medical college in the United States. The few which have not heretofore supported this effort should join this year. Events are demonstrating that the Society's program is one of the best investments ever made by medical research and teaching institutions.

(Signed) Victor Johnson

Preliminary Report of Applicants for Admission to U. S. Medical Colleges—Entering Class of September 1949

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and
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Association of American Medical Colleges Committee on Student Personnel Practices
Chicago, Illinois

There were 24,434 individuals who made 88,244 applications to the 79 medical schools in the United States for the class entering in September, 1949. On the average each applicant applied to 3.6 medical schools. This is the largest number of individuals and the largest number of applications on record for any past year, although the increase over the group entering in the fall of 1948 is small, slightly under one per cent.

TABLE 1.

A COMPARISON OF THE NUMBER OF APPLICANTS FOR THE PAST THREE YEARS.

Year	Number of Applications	Number of Individuals	Applications per individual
1947-48	56,279	18,829	3.0
1948-49	81,662	24,242	3.4
1949-50	88,244	24,434	3.6

TABLE 2.

NUMBER OF APPLICATIONS PER INDIVIDUAL FOR THE CLASS ENNTERING IN SEPTEMBER 1949.

Number of Applications	Men	Women	Total	Per Cent
1	9243	619	9862	40
2	3578	243	3821	16
3	2540	151	2691	11
4	1873	110	1983	8
5	1329	68	1397	6
6	923	53	976	4
7	704	33	737	3
8	554	24	578	2
9	428	18	446	2
10-14	1181	51	1232	5
15-19	424	13	437	2
20-29	229	7	236	1
30-39	38	....	38	....
	23,044	1390	24,434	100

Table 2 indicates the number of individuals applying to one, two, three, four, etc., medical schools. About 40 per cent of these individuals apply only to one medical school. A smaller proportion of these are accepted than of those who make multiple applications. Data will be presented later which show that of the group who took the Medical College Admission Test those making multiple applications scored higher, on the average, than those making a single application. Approximately 8 per cent of the individuals

TABLE 3.

NUMBER OF INDIVIDUALS FROM EACH STATE APPLYING TO ONE OR MORE MEDICAL SCHOOLS FOR ADMISSION IN THE FALL OF 1949

State	Number of Individuals Applying		
	Men	Women	Total
Alabama	344	17	361
Arizona	78	2	80
Arkansas	212	7	219
California	1368	97	1465
Colorado	259	20	279
Connecticut	318	25	343
Delaware	35	2	37
District of Columbia	210	22	232
Florida	364	20	384
Georgia	422	17	439
Idaho	91	3	94
Illinois	1168	84	1252
Indiana	567	32	599
Iowa	301	14	315
Kansas	280	16	296
Kentucky	347	27	374
Louisiana	437	33	470
Maine	71	4	75
Maryland	287	22	309
Massachusetts	669	24	693
Michigan	810	51	861
Minnesota	348	17	365
Mississippi	352	13	365
Missouri	416	19	435
Montana	78	2	80
Nebraska	298	15	313
Nevada	15	....	15
New Hampshire	42	4	46
New Jersey	959	51	1010
New Mexico	37	4	41
New York	3350	266	3616
North Carolina	514	20	534
North Dakota	92	2	94
Ohio	1134	54	1188
Oklahoma	256	8	264
Oregon	159	6	165
Pennsylvania	1973	121	2094
Rhode Island	120	6	126
South Carolina	304	10	314
South Dakota	110	3	113
Tennessee	363	18	381
Texas	1000	45	1045
Utah	163	4	167
Vermont	64	2	66
Virginia	388	14	402
Washington	360	23	383
West Virginia	285	24	309
Wisconsin	402	22	424
Wyoming	38	0	38
Total	22,258	1,312	23,570
U. S. Territories	338	42	380
Canada	148	5	153
Foreign	266	29	295
Not Stated	34	2	36
Grand Total	23,044	1,390	24,434

apply to ten medical schools or more. Three individuals each applied to 38 medical schools and one gained an acceptance.

Table 3 indicates the state of residence of the applicants. New York State has the largest number of applicants (3,616), followed by Pennsylvania (2,094), California (1,465), Illinois (1,252), Ohio (1,188), Texas (1,045) and New Jersey (1,010) in order. These seven states supplied 48 per cent

of all applicants during the year under study. If statistics are based on the census districts, the Middle Atlantic states—New Jersey, New York and Pennsylvania—supply 27 per cent and the district supplying the next largest number of applicants is the East North Central—Illinois, Indiana, Michigan, Ohio and Wisconsin—which supplied 18 per cent. On the basis of their population (1940 census), Michigan and Massachusetts might be expected to supply a larger number of applicants, while New York supplies a somewhat larger number than might be expected.

The information on which these application statistics are based has been obtained directly from the 79 medical schools in the United States. Each medical school submitted to the Association, as it has in the past, an index card for each applicant who filed a completed application. This card gives the name of the applicant, his home address, his undergraduate college last attended, and whether he has been accepted or not accepted by the medical school reporting. Various medical schools differ widely in their method of recording and reporting completed applications. A number of state supported schools do not consider or report applications from persons residing outside the state.

A more complete report on the 1949 group is in preparation and will be presented in the fall.

New techniques (utilizing punched cards) are being used to assemble the statistics for the group applying for admission in 1950-1951 and the study is now in process. On the basis of reports received to date, 7,193 applications (not individuals) have been accepted, 1,112 of which have been withdrawn, and 41,670 applications have been reported as not accepted. These figures are incomplete. A report on the complete figures will be published in the fall of 1950.

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ROTC Clinical Clerkships—1950

The "clinical clerkship" type of Medical Corps ROTC Summer Camp at Army general hospitals for veteran medical students with more than one year of military service will be continued during the current Summer. Limited facilities will require that attendance be restricted to qualified junior enrollees and to those sophmores who attend schools where the curricula require specific duties between the junior and senior years. The Army's large station hospitals at Fort Bragg, North Carolina, and Fort Benning, Georgia, will be utilized as well as the following Army General Hospitals: Walter Reed at Washington, D. C.; Brooke, Fort Sam Houston, Texas; Fitzsimons, Denver, Colorado; William Beaumont, El Paso, Texas; Letterman, San Francisco, California; and Madigan at Tacoma, Washington.

Non-veteran junior students as well as such veterans and non-veteran sophomores who choose to volunteer will attend a field type camp at the Medical Field Service School, Brooke Army Medical Center, Fort Sam Houston, Texas.

It is anticipated that approximately 1,300 veteran Medical Corps ROTC enrollees will participate in the "clinical clerkship" camps, two sessions of which will be held, the first beginning June 19, 1950, and ending July 29, and the second starting August 7, 1950 and concluding September 16. The program of instruction approved for them will include 30 hours of purely military subjects and 174 hours devoted to military medicine and surgery. The latter will provide instruction and experience in the wards, outpatient clinics, and laboratories of the hospital in regard to general and preventive medicine; the various surgical specialties as they are practiced in military installations, to include the taking of preliminary histories, performance of preliminary physical examinations, the accomplishment of routine laboratory procedures as prescribed by Army Regulations and other official directives. Enrollees will attend formal teaching exercises, such as ward rounds, conferences, seminars, and lectures, thus affording them an opportunity to become familiar with military medical requirements, policies, and procedures. A policy of rotating assignments in accordance with the expressed interests of the individual student and within the limits imposed by the local situation in regard to training facilities will be pursued. This program, as can readily be seen, offers much to the veteran student whose previous military experience has been in other arms or branches and who requires orientation in the mission and function of the Medical Department. At the same time, it provides a most interesting opportunity for duty in some of the country's finest hospitals.

Those enrollees who attend the field type camp at the Medical Field Service School will also have an opportunity for a limited amount of duty at Brooke General Hospital. One training day of each week will be spent at that institution according to present plans. There they will be oriented in the staff relations of the Army's general hospitals and be given observation tours of the medical, neuropsychiatrical, and surgical services. Further, this group will make an observation tour of the School of Aviation Medicine at nearby Randolph Field. As a part of the hospital tours, they will be given an orientation in physical medicine, including the utilization of occupational therapy and physical reconditioning.

Through demonstrations and actual

participation, the enrollees will have an opportunity to observe and participate in the actual function of field type medical units. Demonstrations will be given of the latest types of field medical equipment and of the numerous items furnished the Medical Department by other services. A twenty hour course in practical preventive medicine will include practical exercises in sanitation, the solution of specific problems by student groups, and the control of insects and rodents.

The Medical Corps enrollees will share their camp with students in the Dental, Veterinary and Pharmacy Corps ROTC programs who will be pursuing the schedules devised for their respective corps. The extensive recreational facilities of Fort Sam Houston, which include a golf course, tennis courts, swimming pools, several clubs and week end recreational camps will be at their disposal. Both on and off duty, the campers will find all of the facilities of the largest military medical center in the world devoted toward their interests and well being.

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Licensure Statistics for 1949

In the *Journal of the American Medical Association* for June 3, 1950, the Council on Medical Education and Hospitals of the AMA, publishes it's annual survey of Licensure Statistics for 1949. This report presents much valuable information that bears, in one way or another, on medical education and teaching. Medical schools are always interested to have this information on their and other graduates who have taken a license examination, before which states and with what results. The present report lists 17 medical schools represented by 918 examinees, none of whom failed in the examination. The approved medical schools were represented by 4675 examinees of whom 106 failed, a percentage of 2.26. The unapproved medical schools were represented by 282 examinees of whom 98 failed, a percentage of 3.47. These figures apply only to the graduates of schools located in the United States. The record of other schools, especially foreign schools, was in no way comparable to those of our own schools.

Sixteen schools, represented by 1438 examinees, had less than 2 per cent of failures. None of these schools had more than 2 failures, the total for the group being 21 failures or 1.46 per cent.

Sixteen schools, represented by 1,310 examinees, had between 2 and 5 per cent of failures, the total for the group being 36 failures, or 2.75 per cent. No school in this group had more than 6 failures.

Twelve schools had from 5 to 10 per cent of failures among 683 examinees, 52 of whom failed or 7.6 per cent. There were 2.9 per cent failures in the schools comprising the group.

Eight schools had more than 10 per cent of failures the lowest being 16.0 per cent, the highest 26.7 per cent. There were 179 examinees from these schools, 43 of whom failed. The percentage of failures for these 8 schools were 16.0, 16.7, 17.3, 19.4, 22.2, 23.5 and 26.7.

The states failing the largest number of examinees were, in order: Pennsylvania, 399 examinees, 3 failed, or 0.75 per cent; California, 549 examinees, 57 failed, or 1.0 per cent; Illinois, 443 examinees, 67 failed, or 1.54 per cent; New York, 808 examinees, 397 failed, or 4.9 per cent; Florida, 327 examinees, 19 failed, or 5.8 per cent. In the case of New York many of the failures were incurred by graduates of foreign universities.

Many other items of interest in connection with licensure are covered in this report. Data on premedical training, required internships, licensing board requirements, items of interest are presented. The Council on Medical Education and Hospitals deserves the highest commendation for this very fine report. It is deserving of careful reading and analysis.

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Conference on Audio-Visual Aids in Teaching of Cardiovascular Diseases

At the invitation of Dr. Walter A. Bloedorn, Chairman of the Audio-Visual Committee of the Association of American Medical Colleges, a conference was

held March 3, 1950, in Chicago, at the University of Illinois College of Medicine, to discuss the role of audio-visual aids in the teaching of cardiovascular diseases. Eighty-three persons were present, representing more than 60 medical schools and organizations interested in medical education.

The first conference was divided into two sections: Demonstration of the range of visual and auditory tools and media now available to medical teachers; and discussion for all participants.

The Medical Film Institute of the Association of American Medical Colleges assisted throughout all phases of preparation, execution and reporting of the conference.

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Anent Accepted Applicants by Medical Schools

List Number 13 of accepted applicants for the next freshman class of the medical schools was mailed June 16 and included corrections and additions received in the office of the Association through June 13. The list contained in alphabetical order 6,081 applicants and indicated by code the medical college or colleges accepting each applicant.

According to the comments received from 78 of the medical schools, 59 find these lists of value and the same number prefer to have the lists cumulative with each new name included since the last list designated by an asterisk.

At the time List Number 13 was prepared all medical colleges had sent in names of some accepted applicants except the following six schools: Arkansas; Howard; Illinois; Pittsburgh; Southwestern; Wisconsin. These schools do not admit candidates until a later date than most medical schools.

Each of the lists of accepted applicants contains only the names of the accepted applicants who have paid a deposit or indicated a definite acceptance. Names are withdrawn from the list as soon as the medical schools report to the Association that the applicant has cancelled his acceptance.

Another list is scheduled to go to press on July 11 and to be mailed from Chicago on July 14.

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AAMC 1950 Meeting

The sixty-first annual meeting of the Association of American Medical Colleges will be held in the Lake Placid Club, Essex County, New York, October 23, 24 and 25, 1950. Further details and copy of the program will be published in the September issue of THE JOURNAL.

Those who intend to attend this meeting are urged to make reservations at the club early.

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G. I. Students in 1949-1950 Freshman Class

Reports received from the medical schools show that 7,054 students were enrolled in the 1949-1950 freshman class. Of that number, 3,808 were reported as being beneficiaries of G. I. grants, or 54.0 per cent. It appears that the number of G. I.'s is gradually diminishing as the benefits receivable under the bill are expiring.

College News

Yale University
School of Medicine

A new Department of Microbiology will be established at Yale to coordinate the extensive research and teaching activities related to microbiology now going on in the various schools and departments at Yale. Henry P. Treffers, professor of microbiology, has been named Chairman of the new department which will start its program July 1. With its new status, the Department of Microbiology can operate in any school in the University and will include studies in bacteriology, immunology, virology, mycology, parasitology and tropical medicine. The present Department of Bacteriology will be reorganized as a section under microbiology. Personnel and facilities available for the department's work in general microbiology will be announced at a later date.

Graduate students other than medical students, who are candidates for M.S. and Ph.D. degrees will also have an opportunity to take these courses and participate in the research projects. It is expected that approximately 65 medical students and 35 graduate students will be working in the new department. In addition, advanced research will also be conducted by postdoctorate Fellows attached to the department. Although no courses for undergraduates are planned at this time, such a program may eventually be included.

Seven students of the senior class have completed a special training on the work of general practitioners, not from books, but by living and working with these doctors in two Connecticut communities. Each of the students spent a week during May accompanying general practitioners in Torrington and Willimantic. They observed the doctors receive patients in their offices and visit the sick confined to their homes.

The project was started at Yale last year under Dr. Herbert Thoms, professor of obstetrics and gynecology, who was again in charge this year. Students participate on a voluntary basis only, as the project is not a required part of the Yale curriculum.

In Torrington and Willimantic the students lived in quarters provided by the local hospital. During the day, they were assigned to various practitioners cooperating in the project and did not return to the hospital unless the doctor in the course of his work had to visit there. Six of the seven medical students went to Torrington where they lived at the Charlotte Hungerford Hospital. Arrangements were made by Dr. Alexander R. Robertson of the hospital's Education Committee whose chairman is Dr. Benjamin Katzen. In Willimantic, the student was at the Windham Community Memorial Hospital and Dr. Ralph L. Gilman of Storrs was in charge of the program. All of the seven students will receive their M.D. degrees this June and will begin immediately their hospital internships.

Dr. Milton C. Winternitz, Anthony N. Brady professor of pathology and formerly Dean of the Yale School of Medicine, retired June 30 after 33 years of teaching on the Yale faculty. He will continue in his position of Director of the Board of Scientific Advisers of The Jane Coffin Childs Memorial Fund for Medical Research.

A March of Dimes grant of $242,388 to Yale will continue research on poliomyelitis for the next five years. Of the total grant, $151,750 is to finance the continuing five year project while the additional $90,638 is for research to be conducted during the first year. The project will be under the direction of Dr. John R. Paul, professor of preventive medicine. Yale scientists and physicists, including virologists, epidemiologists, internists, and pediatricians, will investigate the sources of virus, both during and between epidemic periods. The investigations will attempt to extend laboratory findings into areas where the disease occurs. The ulti-

mate aim of the project is to develop methods of preventing and controlling poliomyelitis epidemics. Similar studies have been going on at Yale since 1938.

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University of Illinois
College of Medicine

Members of the senior class were guests of the faculty at a dinner June 15. This traditional, informal function which precedes the commencement exercises brought to a close a four year period of student-faculty association. It provided an opportunity to say "bon voyage" to all members of the class of 1950. Student impressions of their experiences and contacts in the college were the feature of the evening.

The appointment of Dr. Howard J. Shaughnessy as professor and head of the newly created department of public health has been announced. Dr. Shaughnessy presently serves as chief of the division of laboratories of the State Department of Public Health. He will continue to serve as director of laboratories of the State Department of Public Health, and thus will divide his time between the University and the Department.

With the establishment of the department of public health, the University will offer graduate instruction in the field of public health. Graduate students will have an opportunity to earn master of science degrees in such fields as public health laboratory. Specialized courses for sanitarians and other public health groups will be offered. The University plans eventually to train specialists in such fields as public health administration, dentistry, health education, nursing, nutrition, laboratory practice, statistics, engineering, as well as epidemiology, tuberculosis control, venereal disease control, school health, industrial health, and sanitary science. A program of research also will be undertaken by the department.

Dean Olson has been appointed to the Board of Directors of the Institution for Tuberculosis Research. This Institution was established for the production, distribution and application of the bacillus Calmette-Guerin (BCG) and other methods and materials for the prevention of tuberculosis and for conducting research in tuberculosis.

Dr. Robert M. Kark, chief of clinical investigation at the Army Medical Nutritional Laboratory in Chicago, has been appointed professor of medicine. Dr. Earl W. Cauldwell, a research associate in the department of pathology, has been promoted to assistant professor.

Dr. Mark H. Lepper has been appointed associate professor of preventive medicine.

Dr. John M. Marshall, Jr., an intern at the University of Illinois Research and Educational Hospitals, has been named the winner of the Borden Undergraduate Research Award for 1950. The award represents a gift of $500. Originality and thoroughness of research are of primary consideration in selecting the winner of the award, which is given by the Borden Company Foundation, Inc. Dr. Marshall received the award for his investigation of the role of the enzyme, renin, in high blood pressure produced in animals by constriction of the arteries to kidneys.

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New York University-
Bellevue Medical Center

An estimated $8,500,000 building program, to be initiated this year, calls for the completion of three additional units of the University section of the New York University-Bellevue Medical Center within an 18 month period. A research grant of $52,379 to finance a two year study of the psychological and sociological aspects of facial deformities and plastic surgery by a team of scientists has been made by the National Institute of Mental Health, of the U. S. Public Health Service. The research project will utilize the techniques of sociology, anthropology, psychiatry, psychology and surgery to make a study of the problem of persons with facial disfigurements. The project is being coordinated by Frances C. Macgregor and is under the direction of Dr. John M. Converse, a faculty member of the Department of Surgery, New York University College of Medicine.

The units to be constructed include the Main Building for the Medical Schools,

the Alumni Hall Auditorium; and the Hall of Residence. These new buildings, together with the Institute of Physical Medicine and rehabilitation, now under construction, will comprise four of the five principal units of the Center, to be located on the Center's four-block, 11-acre site from 30th Street to 34th Street, between First Avenue and the East River Drive, just north of Bellevue Hospital. New facilities for the Center's University Hospital will be the last building to be constructed.

Dr. L. Corsan Reid has been appointed professor of experimental surgery on the faculty of New York University Post-Graduate Medical School. Dr. Reid served since 1946 as associate professor of physiology on the faculty of New York University College of Medicine. In the new post, he will be concerned with research and teaching relating to fundametal considerations underlying surgical techniques.

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Cornell University Medical College

Efforts to beat cancer got under way with the signing of an agreement combining the resources and technical skill of four major medical institutions, Cornell University Medical College, Sloan-Kettering Institute for Cancer Research, Memorial Center for Cancer and Allied Diseases and the Society of the New York Hospital. Under the agreement Cornell will set up a new graduate study division in its medical college. Students of medicine, biology, chemistry and physics will enroll in this division to devote themselves primarily to investigate work in cancer.

The new Cornell division will be known as the "Sloan-Kettering Division of Cornell University Medical College" and will be located at Memorial Center, which will own and construct the required facilities. The Sloan-Kettering Institute will supply the operating funds and personnel. New York Hospital will permit the use of its clinical and research facilities in much the same manner they are now being used by Cornell to which it has a close affiliation.

Although the curriculum has not yet been completely set up, the new division will begin operating this fall with not more than ten students in the program. The new division will award Doctor of Philosophy and master's degrees through Cornell.

Dr. Thomas A. C. Rennie has been appointed professor of psychiatry (social).

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Northwestern University Medical College

Ground was broken May 13, for the $14,000,000 television-equipped Veterans Administration Research Hospital which will become a part of the Northwestern University medical ecnter in Chicago. The Veterans Administration and Northwestern's Medical School will work together in operating the hospital. A committee consisting of Dean Young and a number of the school's department heads, will serve as consultants, assisting in the medical supervision and staffing of the hospital.

Dr. Walter G. Maddock has been appointed Edward G. Elcock professor of surgery.

Two March of Dimes grants totaling $17,234 have been awarded to Northwestern for polio research. One grant of $8.000 will enable scientists under the direction of Dr. Lewis J. Pollock, professor of nervous and mental diseases, to complete their studies of the sequence of changes in nerve and muscle tissue affected by polio. The second grant, $9,234 will be for basic and postgraduate instruction in physical therapy under the direction of Dr. Stafford L. Osborne, chairman of the department of physical medicine.

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Tulane University of Louisiana School of Medicine

A total of 37 years of service to the medical teaching profession will come to a close next month for Dr. Edward L. King, professor of obstetrics in the school of medicine. He will become emeritus professor of obstetrics but will continue to serve as consultant in his specialty.

Dr. Ernest Carrol Faust, professor of parasitology has been commissioned by the United States department of state to travel in South America during the sum-

mer. A grant from the state department will enable Dr. Faust to give lectures and conduct seminars and conferences in the field of parasitology in the University of Chile and to consult with authorities in this field in other Latin American cities.

Dr. Faust's itinerary will include the Gorgas Memorial laborator yin the Canal Zone, Panama, the School of Medicine, Bogota, Columbia; San Marcus University, Lima, Peru; and centers in Buenos Aires; Tucuman, Argentinia; Sao Paulo, Brazil; Rio de Janiero; and Caracas, Venezuela. Dr. Faust will represent Tulane at the 5th International Congress of Microbiology in Rio de Janiero.

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Ohio State University
College of Medicine

A significant step toward meeting the need for more physicians and surgeons has been taken at Ohio. The number of freshmen medical students admitted to the College of Medicine, effective next Autumn, will be increased to 150 compared with the present limitation of 88. The College of Medicine will have available for clinical training next year a $14,000,000 Medical Health Center, now being completed. The increase in number of medical students is made possible by the additional space provided by the new Medical Health Center. The increase in the number of students admitted is a part of the original Medical Health Center plan presented to the Ohio General Assembly in 1944.

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Western Reserve University
School of Medicine

Dr. Gilbert J. Vosburgh, assistant professor of obstetrics, Johns Hopkins University, has been appointed professor of obstetrics and gynecology and director of the department of obstetrics and gynecology in the University Hospitals. Dr. Vosburgh will be the first occupant of the Arthur H. Bill chair of obstetrics and gynecology recently established at the university.

The establishment of the Eddie Painton Fellowship in rheumatic fever in the department of preventive medicine and University Hospitals has been announced. The minimum prerequisites for fellowships are one year of clinical work and one year of laboratory work or two years of clinical training. The fellowship carries a stipend of $3,600 per year. Appointments will be made annually but are subject to renewal. Applicants should write to Dr. John H. Dingle, Department of Preventive Medicine, School of Medicine, Western Reserve University, Cleveland 6.

Dr. Arthur J. Patek Jr., assistant clinical professor of medicine at Columbia University College of Physicians and Surgeons, was appointed professor of medicine and director of medicine at Mount Sinai Hospital.

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University of Buffalo
School of Medicine

In a public ceremony, attended by state and federal officals, the University of Buffalo took over the former Marine Hospital recently. The hospital was transformed into the University's Chronic Disease Institute. The highlight was the exchange of a tripartite agreement, under which the U. S. Public Health Service makes the hospital available to the New York State Health Department, and the latter, in turn, guarantees the University sufficient funds for maintenance of the buildings. The State also is providing funds for operation of the Institute, up to $200,000 for the current year.

The University's Alcoholic Rehabilitation Center, now housed in the Medical School, is expected to move into the Institute immediately. The other two projected phases of the Institute's work—physical rehabilitation and chronic disease research—will be organized later, probably in the fall.

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University of Pennsylvania
School of Medicine

Dr. John P. Hubbard has been appointed professor of public health and preventive medicine, and Head of the department.

Johns Hopkins University School of Hygiene and Public Health

Dr. Joseph L. Lilienthal Jr. has been appointed professor of environmental medicine, a new department. Dr. Lilienthal will continue to be head of the physiologic division of the department of medicine at the Johns Hopkins Hospital and associate professor of medicine at the school of medicine. The new department will be concerned only with fundamental research. Anna Baetjer, D.Sc., assistant professor of environmental hygiene, will be the only other member of the new department for the present and will continue studies she has conducted for several years on the effects of certain types of dust in the development of pneumonia.

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State University of New York Medical Center at New York College of Medicine

The appointment of Dr. Louis M. Hellman as the first fulltime professor of obstetrics and gynecology in the history of the School was announced recently. Dr. Hellman's appointment is the first professorial post to be announced in the name of the new medical school, which was recently reorganized by merger of Long Island College of Medicine with the State University of New York. Dr. Hellman will succeed Dr. Charles A. Gordon as professor and executive officer of the college department and will have his offices at Kings County Hospital, where he will be Director of the College Division of Obsetrics and Gynecology. He will devote his full time to his service at Kings County Hospital and to the teaching and research program of the College department.

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University of Rochester School of Medicine

Financed by a $435,000 grant from the U. S. Public Health Service, a new center for cancer research, control and teaching was opened April 5. The Medical Center has carried on an extensive program of cancer investigation for 25 years.

University of Wisconsin Medical School

Dean William S. Middleton received an honorary D.Sc. degree from Cambridge University, England. He has been dean at Wisconsin since 1935, a member of the faculty since 1912. Dr. Ruth E. Boynton, director of student health services at the University of Minnesota spoke at the Medical School on the "Development and Philosophy of Student Health Services."

On November 18, 1950, the American College of Physicians North Central Regional Meeting will be held in Madison, Wisconsin. The meeting will consist of a series of scientific papers. A scientific exhibit of wide general interest is planned in connection with the meeting. This postgraduate instructional session is open to all interested physicians whether or not they are members of the American College of Physicians.

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Albany Medical College

The Albany Medical Center Council, a coordinating body to provide expert leadership on broad problems of medical education, public health and hospital care in this area, has recently been formed. The Albany Medical Center Council is expected to have far reaching effects on the future pattern of medical education and hospital care in Albany and the 14 counties of east central and northeastern New York. Dr. R. S. Cunningham has been appointed Executive Director, secretary and treasurer. Dr. Cunningham will continue as Dean of the Medical College until a new Dean is appointed to assume leadership in the College.

Dr. John Faunce Roach has been appointed Professor and Director of the Department of Radiology and Radiologist-in-Chief to the Albany Hospital.

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Emory University School of Medicine

Dr. F. William Sunderman has been appointed professor of clinical medicine.

Bowman Gray
School of Medicine

Dr. Robert B. Lawson, associate professor of pediatrics, has been promoted to professor of pediatrics and director of the department. Dr. Leroy J. Butler will retain the title of professor of pediatrics but has asked to be relieved of administrative duties. Dr. Eben Alexander Jr. has been promoted from instructor in surgery to assistant professor of surgery in charge of neurosurgery. Dr. George E. Bradford, formerly assistant in clinical otolaryngology, has been named assistant professor of otolaryngology.

The Weinstein Award of $50 was made to Dr. Charlotte Rita Kay of Charlotte, N. C., for the best paper by a senior student on a subject connected with obstetrics and gynecology. Dr. William Thaddeus Bethea Jr. of Dillon, S. C., received the Shepardon Award of $25 on the basis of scholarship, responsibility, consideration of patients and promise of continuing in its highest ideals the practice and art of medicine.

A grant of $3,000 has been made by the Ciba Pharmaceutical Company to Dr. J. Maxwell Little, professor of pharmacology, for study on the results of various drugs.

Dr. Weston M. Kelsey has been promoted from the position of assistant professor of pediatrics to that of associate professor.

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University of the Philippines
College of Medicine

The laboratory buildings which were destroyed during the war are now rebuilt and in use. They will accommodate classes of 88 students, the number now admitted to the freshman year. When funds are available, the college will be moved from Manila to Diliman, the new site of the University. The present buildings and the Philippine General Hospital will become a graduate school for training in specialties. Research is now an even more vital function than it was in the years preceding the war.

The Philippine Army has assigned Dr. Conrado B. Rivera to the department of physical medicine and rehabilitation as part of a training itinerary which will enable him to set up a departmet of physical medicine and rehabilitation in a general hospital of the Philippine Army.

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University of Kansas
School of Medicine

The American Cancer Society has made a grant of $1,290 for the purchase of ACTH and cortisone for clinical research on acute leukemias in children.

The first annual Student Research Day was held May 12. Four freshmen and four seniors presented reports about the research papers they had entered in the contest sponsored by the Research Committee of the School.

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Dr. Proud to Head Department

Dr. G. O'Neil Proud, instructor in the department of otolaryngology at Washington University School of Medicine, St. Louis, Mo., has been appointed chairman of the department of otolaryngology at the University of Kansas School of Medicine, Kansas City, effective July 1. Dr. Sam E. Roberts, chairman of the department since 1928, who has been made chairman emeritus, will devote his time to private practice. Dr. Proud received his medical degree from Washington University in 1939 and has served on the staffs of St. Louis Children's and Barnes hospitals. He is a lieutenant in the U. S. Naval Reserve.

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University of Minnesota
Medical School

A continuation course in neurologic roentgenology will be offered at the Center for Continuation Study October 30 to November 4, 1950. Distinguished visiting physicians who will participate as faculty members of the course include Drs. Arthur E. Childe, Winnipeg; Philip J. Hodes, Philadelphia; Dabney Kerr, Iowa City, and Knut Lindblom, Stockholm, Sweden. Clinical and full time members of the staff of the University of Minnesota and Mayo Foundation will complete the faculty for the course.

University of Chicago
School of Medicine

The Basil Harvey Fund has been established at the University by a group representing Dr. Basil C. H. Harvey's former students, colleagues and friends to honor his almost half-century of service to medical education. This will be a revolving loan fund for both undergraduate and postgraduate students of medicine. Dr. Harvey was professor of anatomy and dean of students in the Division of Biological Sciences at the time of his retirement in 1940.

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Columbia University College
of Physicians and Surgeons

Mr. John Gunther has turned over to the University the royalties on his book "Death Be Not Proud" to establish the John Gunther, Jr. Memorial in the department of neurological surgery for research in this field for children. His son, John, died of a brain tumor at the age of 17. Harper and Brothers, publishers of the book, have contributed their earnings to the fund.

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Woman's Medical College

A bequest of $10,000 has been received from the Estate of William Edward Mead to be combined with a bequest of a like amount from the Estate of his wife, Dr. Kate C. Hurd-Mead, the income to be used toward a lectureship on the history of medicine to be known as the Kate C. Hurd '88, Fund. Dr. Mead also left her library on the History of Women in Medicine to the College. She also directed that $20,886 be given to the Alumni Association of the College to be known as the Kate Campbell Hurd '88 Fund.

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George Washington University
School of Medicine

Dr. Ronald A. Cox has been appointed professor and Executive Officer of the department of ophthalmology and chief of the department in the University Hospital.

Georgetown University
School of Medicine

Georgetown celebrated its centennial anniversary, June 9 and 10, with an appropriate program of medical symposiums, clinics and scientific exhibits.

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University of South Dakota
School of Medicine

The U. S. Public Health Service has renewed the Cancer Teaching and Cardiovascular Teaching Grants, respectively, each to the extent of $5,000. The project director of the Cancer Grant is Dr. R. L. Ferguson, professor of pathology, and the project director of the Cardiovascular Grant is Dr. R. S. Anderson, professor of physiology.

The Jacques Loewe Research Foundation of New York has made a research grant of $2,500 to the department of pharmacology to study the effects of analgesics lasting over long periods of time. This work is under the direction of Dr. Donald Slaughter.

The Physiological Chemicals Company of New York has made a scientific research grant of $362 to the pharmacology department to study the effects of a new procaine salt to be used for local anesthesia. This project is also under the direction of Dr. Donald Slaughter.

The medical school has recently gone on record as requiring all of its second year students to take the National Board Examinations. In addition, the curriculum has been arranged so that the first year students will have a 20 week first semester and an 18 week second semester. This schedule will also apply to the second year students. This new schedule will permit students to have one afternoon and Saturday mornings free from regularly assigned class work. In addition, the second year students will have a clinical clerkship of one month's duration after the conclusion of the second semester. The dates for the school year of 1950-51 are, 4 September —3 June.

Work will soon be started on the $600,000 medical science building to be located in Vermillion.

Chicago Medical School

Appointments: Dr. Irving Wolin, assistant professor of orthopedic surgery; Dr. Winston I. Breslin, assistant professor of psychiatry; Dr. Harold M. Brill, assistant professor of gynecology.

Dr. Philippe Shubik, a graduate of the University of Oxford, has been appointed coordinator of the cancer teaching program.

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University of Cincinnati College of Medicine

Roger C. Crafts, Ph.D., a member of the department of anatomy at Boston University School of Medicine, has been appointed head of the department. He will fill the Francis Brunning chair of anatomy, succeeding Joseph L. Schwind, Ph.D., who died in 1948.

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Medical College of Virginia

Dr. William T. Sanger, president of the College, was honored at a program April 27 on the occasion of his 25th year as president of the college.

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University of Nebraska College of Medicine

At the commencement held May 24th, Dr. Alan Richards Moritz, a graduate of the College, 1923, was awarded the honorary degree of Doctor of Science. Dr. Moritz is now professor and director of the Institute of Pathology at Western Reserve University.

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University of Miami

Dr. Virgil H. Moon, emeritus professor of pathology, Jefferson Medical College, has been appointed professor of pathology. The university has expanded its activities by organizing a Medical Research Unit to provide for investigations in various fields of medical science.

University of Oklahoma School of Medicine

Dr. James P. Dewar Jr., has been appointed assistant professor of pathology and director of surgical pathology at the University Hospital.

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Medical College State of South Carolina

Dr. John T. Cuttino, associate in pathology, Duke University School of Medicine, has been appointed dean and associate professor of pathology.

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University of Mississippi School of Medicine

The State Building Commission has been given authority to proceed at once with making plans for the location and construction of a four year medical school on State grounds in Jackson, Mississippi. Funds are also available for the construction of a teaching hospital.

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University of Washington School of Medicine

Appointments: Dr. Robert A. Bruce, assistant professor of medicine in charge of the Cardiovascular unit. Dr. William K. Jordon, assistant professor of medicine in charge of neurology.

Dr. Alfred Farah, associate professor of pharmacology, has resigned to accept a similar position at Syracuse, State University of New York.

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University of Southern California School of Medicine

Dr. Merl J. Carson, assistant professor of pediatrics and assistant dean of Washington University School of Medicine has been appointed head of the department of pediatrics. He will also direct the Los Angeles Children's Hospital, which is connected with the medical school.

General News

Life Insurance Medical Research Fund

The life insurance companies of the United States and Canada will give $670,000 to medical schools and other research centers during 1950 for the study of heart disease and the training of research scientists. The awards bring to $3,200,000 the total amount of money given out by the Fund since it was organized late in 1945. Recipient of the Lasker Award from the American Public Health Association last year for its contributions to the advancement of medical science and public health, the Life Insurance Medical Research Fund is now being supported by 147 life insurance companies. Because diseases of the heart and arteries are by far the commonest cause of death in America, the Fund has so far restricted its activities to this field, particularly to the study of high blood pressure, hardening of the arteries and rheumatic fever.

Included in the awards approved by the Fund's Board of Directors yesterday is $548,000 to be used as grants-in-aid for research programs and an additional $122,000 which will go to 34 research fellows. The main purpose of the fellowships, given yearly since the Fund was begun, is to help fill the deficiency in trained research workers which is a serious handicap in progress on the vital problems of heart disease.

The larger sum of $548,000 which the life insurance companies will pay out during 1950 will be granted to 36 medical schools and other research centers and will support 51 different research programs. The value of the individual grants-in-aid range from several thousand dollars to $21,000.

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The Fulbright Program

Approximately 300 awards for university lecturing and advanced research are available in: Australia; France; Italy; Philippines; Belgium and Luxembourg; Greece; Netherlands; Turkey; Burma; India; New Zealand; United Kingdom and Colonial Dependencies; Egypt; Iran; Norway. Applications for these Awards must be submitted between June 15 and October 15, 1950.

Awards under Public Law 584 (79th Congress) provide stipends in the currencies of the participating countries. Due to a number of factors, the stipends in dollar equivalents vary from country to country. They are intended to cover all essential expenses, including maintenance and travel within the given countries and round trip transportation. Supplemental cost-of-living allowances for accompanying dependents and limited amounts for books and equipment necessary to the project may be added on request. Awards are usually granted for one academic year. They require attachment to a foreign institution and are for use only in one country.

Requirements for applications: For University Lecturing: Teaching experience in an institution of higher learning. For Advanced Research: The doctoral degree or equivalent recognized standing in a profession. U. S. Citizenship.

An application form and additional information will be available on request from the Executive Secretary, Committee on International Exchange of Persons, 2101 Constitution Avenue, Washington 25, D. C.

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New Medical School in Argentina

The Medical School of the University of Tucumán (recently established) will open this year. The University of Cuyo is planning the establishment of a medical school in Mendoza, at the foot of the highest Andes mountain. There are at present in full activity, four medical schools in Argentina: Buenos Aires, Córdoba, Rosario and La Plata. There are no private medical schools.

Buffalo Endorses Medical Research

The Buffalo City Council stuck by its decision to save for medical studies unwanted dogs and cats formerly destroyed by the SPCA as it voted 10 to 5 to override the mayor's veto of the bill which the council passed on May 31.

The way is now clear for the ordinance to go into effect on July 1. On that date the SPCA ordinarily renews its contract with the city authorities under the terms of which it receives from the City of Buffalo $20,000 a year to dispose of unwanted animals. The SPCA has indicated, however, that it will not renews its contract this year because of its opposition to the ordinance which will help medical institutions in the city carry on studies on such health problems as cancer, heart disease and blindness. The authors of the ordinance anticipated such action and consequently the bill provides for administration of the pound by the city authorities. The pound has always been municipal property even when it was run by the SPCA.

Meanwhile medical scientists from other cities in the State of New York were preparing to meet to discuss plans to obtain unwanted dogs and cats for medical studies throughout the state.

Under the terms of the Young Law, passed in 1947, provision is already made for inspection and licensing by the state health department of all laboratories where animal studies are conducted.

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U. S. Navy Internships for 1951 Graduates

The Surgeon General announces that 200 rotating internships in naval hospitals will be available to qualified students who will graduate in 1951. Applications for the internships will be accepted beginning Dec. 19, 1950, in accordance with the Association of American Medical Colleges' cooperative plan for appointment of interns. However, a naval intern must meet all requirements for commission in the Medical Corps of the Naval Reserve; it is necessary, therefore, that applications for Naval Reserve commissions be submitted prior to December 19. Prospective applicants should visit the Naval Officer Procurement office nearest their homes as soon as possible and apply for a Naval Reserve commission, so that this application may be processed well in advance of Feb. 20, 1951, the deadline for notification of successful internship candidates.

Candidates for naval internship are selected from volunteers who agree to serve a minimum of 24 months of active duty from the date of commencement of their intern training. Appointees are commissioned lieutenant (junior grade) in the Medical Corps of the Naval Reserve. On graduation from medical school they receive the pay and allowance of their rank while serving as interns and on active duty. When ordered to other duty on completion of internship, they also qualify for an additional compensation of $100 per month. Other benefits include a $250 uniform allowance, reimbursement of transportation cost for dependents and household effects from their home to station of duty, retirement benefits and an opportunity for later advanced professional training. Information concerning the program may be obtained from any office of Naval Procurement or the Personnel Division, Bureau of Medicine and Surgery, Navy Department, Washington 25, D. C.

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Scholarships for Cerebral Palsy Training

Eight scholarships totaling $3,400 for specialized training in cerebral palsy were announced in May by the Executive Committee of the National Society for Crippled Children and Adults. Financed by a grant from Alpha Chi Omega, national women's fraternity, the scholarships are awarded by the society to physicians, therapists and educators who will assist member societies in developing and operating centers for the use of all public and private agencies interested in helping cerebral palsied persons. Since the inauguration of the program, 44 scholarships have been awarded, that number including nine physicians, eight occupational therapists, 22 physical therapists, four speech pathologists and one educator.

Fellowship in Dermal Pathology

The American Academy of Dermatology and Syphilology established at its annual meeting on Dec. 7, 1949, the Earl D. Osborne Fellowship in Dermal Pathology. The purpose is to provide annually a year's study and training in dermal pathology to a postgraduate student who has completed satisfactorily at least two years of training in dermatology or one of its allied branches, in accordance with the requirements of the American Board of Dermatology and Syphilology. A stipend of $1,000 will be given to the candidate selected.

The period of training will be spent at the Armed Forces Institute of Pathology, Washington, D. C., the appointment being subject to approval by the director of the institute. As the American Board of Dermatology and Syphilology has approved the institute for one year of training, the time spent will be accredited by the board. Dermatologists in training who are interested may obtain blanks for the Earl D. Osborne Fellowship from Dr. Hamilton Montgomery, Mayo Clinic, Rochester, Minn., chairman of the Committee on Pathology of the American Academy of Dermatology and Syphilology. The first appointment will become effective approximately October 1.

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American College of Physicians Research Fellowships

The American College of Physicians announces that a limited number of Fellowships in Medicine will be available from July 1, 1951-June 30, 1952. These Fellowships are designed to provide an opportunity for research training either in the basic medical sciences or in the application of these sciences to clinical investigation. They are for the benefit of physicians who are in the early stages of their preparation for a teaching and investigative career in internal medicine. Assurance must be provided that the applicant will be acceptable in the laboratory or clinic of his choice and that he will be provided with the facilities necessary for the proper pursuit of his work. The stipend will be from $2,200 to $3,200.

Application forms will be supplied on request to The American College of Physicians, 4200 Pine Street, Philadelphia 4, Pa., and must be submitted in duplicate not later than October 1, 1950. Announcement of awards will be made November, 1950.

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American Heart Association Career Investigators

These investigatorships are a part of the Association's research program. Nominations for Career Investigators may be made by members of the Scientific Council of the American Heart Association, deans of medical schools and heads of research units in the United States. The nominations should be sent to Dr. Charles A. R. Connor, the Association's Medical Director, 1775 Broadway, New York 19, N. Y.

The Career Investigator will engage in research of his own choosing in the cardiovascular field. He may work in any institution in the United States which offers adequate facilities, and he will be free from additional administrative duties at that institution. Not more than 15 per cent of his time is to be spent in teaching. Certain Career Investigators may have access to patients, but any income thus created will be considered part of the stipend provided by the American Heart Association.

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American Association of Blood Banks

The Third Annual Meeting of the American Association of Blood Banks is being planned for October 12, 13, 14, 1950 at the Stevens Hotel, Chicago. The program planned will attract blood bank personnel, hospital executives, pathologists, clinicians, surgeons and others interested in the procurement, preservation and administration of blood and blood derivatives. For further information write the Office of the Secretary, 3301 Junius Street, Dallas 1, Texas.

American Society for Pharmacology and Experimental Therapeutics

At the Atlantic City meeting, Dr. George B. Koelle, Chalfont Fellow in Ophthalmology, Wilmer Institute, Johns Hopkins Medical School, was awarded the 1950 John J. Abel prize in pharmacology for his researches on "The histo-chemical differentiation of types of cholinesterase, and their localization in the tissue of the cat." This prize of $1000 and a bronze medal has been donated to the Society by the Eli Lilly Co., for the purpose of stimulating fundamental research in pharmacology and experimental therapeutics of young investigators working in a college, university, hospital, or a non-profit institute.

Further information concerning this award can be obtained from the Secretary H. B. Haag, Medical College of Virginia, Richmond 19, Virginia.

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Plastic Surgery Award

The Foundation of the American Society of Plastic and Reconstructive Surgery offers as its 1950 award $500 (first prize of $300, second prize of $200) and a Certificate of Merit, for essays on some original unpublished subject in plastic surgery. Competition shall be limited to residents in plastic surgery at recognized hospitals and to plastic surgeons who have been in such specific practice for not more than five years. Essays must be in before August 15. For particulars write the secretary, Dr. Clarence R. Straatsma, 66 East 79th Street, New York.

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National Board of Medical Examiners

The National Board of Medical Examiners held its Annual Meeting on May 3 in Philadelphia. The following new members were elected for the regular term of six years: Dr. Chandler McC. Brooks, professor of physiology and head of the department at the State University Medical Center at New York (Long Island Medical College), and Dr. Julian F. DuBois, secretary of the Minnesota State Board of Medical Examiners.

Dr. Howard T. Karsner, Medical Research Advisor to the Surgeon General of the Navy, was elected president of the Board for the established term of three years. Other officers elected were Everett S. Elwood, Executive Secretary and Treasurer, Dr. J. S. Rodman, Medical Secretary, and Dr. John P. Hubbard, Associate Secretary.

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U. S. Public Health Service

A competitive examination for appointment of Medical Officers in the Regular Corps of the U. S. Public Health Service will be held October 9, 10, and 11, 1950, at a number of points throughout the United States, located as centrally as possible in relation to the homes of candidates. Applications must be received no later than September 11, 1950.

Application forms and additional information may be obtained by writing to the Surgeon General, United States Public Health Service, Federal Agency, Washington 25, D. C. Attention: Division of Commissioned Officers. Applications received after September 11, 1950, can not be accepted.

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Scholarships for Medical Library Students

The Medical Library Association is offering, for the second year, two scholarships of $150 each to students taking the Medical Library course at the Columbia University School of Library Service during the summer quarter of 1950 (July 10-Aug. 18). These scholarships are made possible by the Lilly Research Laboratories and are intended to provide assistance for people who are interested in special training in medical library work.

Application should be made to Miss Lucy M. Crissey, Assistant to the Dean, or to Dr. Lowell Martin, Assistant Dean, Columbia University School of Library Science, New York 25, New York.

Book News

Methods in Medical Research: Vol. II

Julius H. Comroe, Jr., Editor in Chief. The Yearbook Publishers, Inc., Chicago. 1950. Price, $6.50.

This series of volumes is devoted to methods and techniques. Each volume is divided into three to five principal self-contained sections, each representing one of the broad fields of medical research. Experts contribute each section. In this volume: "Methods of Study of Bacterial Viruses, Mark H. Adams, Editor; Pulmonary Function Tests, Julius H. Comroe, Jr., Editor; Assay of Hormanal Secretions, Eleanor H. Venning, Editor. Each editor is assisted by a group of contributors, each an expert in his or her special field of research. Coverage is complete. Selected references are appended to each chapter. A subject and author index make for speedy spotting. Illustrations and tables appear where needed to elucidate the text. Editorial and typographical work are excellent. It is a good book for refresher study and reference.

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Woman's Surgeon

By Seale Harris, M.D., Birmingham, Alabama, with the collaboration of Frances Williams Browin. The Macmillan Company, New York. 1950. Price, $5.

This is the life story of Dr. J. Marion Sims: "Surgeon to slaves and to queens"—"Father of modern gynecology"—"Medical prima donna of the 19th century"—The author says "this was J. Marion Sims." A fine biography of an extraordinary, highly gifted man who became a great surgeon. This is a fascinating story written by a past master of the art of writing. It is a noteworthy addition to the history of medicine and its advancement in the United States.

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Bridges' Food and Beverage Analysis

By Marjorie R. Mattics, A.B., Sc.M. ed. 3. Lea & Febiger, Philadelphia. 1950. Price, $5.50.

A most comprehensive collection of food analyses; revised; reorganized and enlarged. The expanded vitamin glossary contains a wealth of information in compact form. Especially important are the new sodium and potassium analyses of approximately 500 foods and 150 municipal water supplies. New tables include those on strained and chopped canned foods and on goitrogenic foods.

Annual Review of Medicine: Vol. I

W. C. Cutting, M.D., Editor, Stanford University School of Medicine. Annual Reviews, Inc., Stanford, California. 1950. Price, $6.

Annual Review of Physiology: Vol. XII. 1950

Victor E. Hall, Editor, and Associates. Annual Review, Inc., and the American Physiological Society, Stanford, California. 1950. Price, $6.

The purpose of these volumes is to review the various fields of medicine regularly. They cover not only medicine but also physiology, biochemistry and other related fields. The reviewers are selected carefully and are assigned subjects. In the present volume, much ground in medicine is covered in about 400 pages printed in small type although that does not darken legibility. Naturally, the bibliography of each subject is covered rather fully. Whether that is an advantage, the reader must decide. For the researcher it is an advantage but for the general reader that is questionable. The fine reputation of the reviewers is sufficient guarantee of the high quality of the work. Here is information aplenty.

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Medical Physics: Vol. II

Editor-in-Chief, Otto Glasser, Ph.D., F.A.C.R., Professor of Biophysics, Frank E. Bunts Educational Institute, Head, Department of Biophysics, Cleveland Clinic Foundation. Yearbook Publishers, Inc., Chicago. 1950. Price, $25.

This is a supplement and complement of volume I. Ninety-five chapters present new material; 58 chapters have been rewritten and brought up to date with supplementary discussions. It is a huge book of 1227 pages and 978 illustrations. Medical physics now occupies an important part in medicine. Many authorities in this field have contributed material to this book, therefore it must be accepted as being the last word on the subject.

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Manual of the International Classification of Diseases and Injuries and Causes of Death: Vols. I & II

Sixth Revision of the International lists of Diseases and Causes of Death, adopted in 1948. By World Health Organization. 1950. Price, $6.

Color Psychology and Color Therapy: A Factual Study of the Influence of Color on Human Life

By Faber Birren, New York. McGraw-Hill Book Company, Inc., New York. 1950. Price, $4.50.

A most fascinating book, presenting a full array of data on the history of color in science and medicine, with a complete review of facts and information on its biological, psychological and visual aspects. Starting with old superstitions connected with color, there is presented a thorough analysis of color as related to human life, its therapeutic values, its effects and use in decorating and fashion work, in hospitals, schools and factories and in relieving fatigue and promoting safety. It is slanted especially toward medical practitioners as an argument that they should recognize the importance of color and let it serve its beneficial purposes.

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Handbook of Physical Medicine and Rehabilitation

Selections Authorized for Publication by the Council on Physical Medicine and Rehabilitation, American Medical Association. Published for the American Medical Association by The Blakiston Company, Philadelphia. 1950. Price, $4.25.

Although this work is listed as being a first edition, it is really the fifth, but its claim to being the first is based on the change in the title. Former editions were the "Handbook of Physical Therapy;" (3 editions); and (4th) the "Handbook of Physical Medicine." The text consists of thirty papers, written by experts in this field and a list of motion picture films on physical medicine and rehabilitation. The fine repute of the contributors is sufficient guarantee of the worth of the book.

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Postgraduate Gastroenterology

Edited by Henry L. Bockus, M.D., Professor of Gastroenterology, University of Pennsylvania Graduate School of Medicine. W. B. Saunders Company, Philadelphia. 1950. Price, $10.

The text, written by fifty-three contributors, represents a course given under the sponsorship of the American College of Physicians in Philadelphia in December, 1949.

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Patent Practice and Management: For Inventors and Executives

By Robert Calvert, Ph.D., Patent Attorney, New York. Scarsdale Press, Scarsdale, New York. 1950. Price, $5.

Harvey Cushing: Surgeon; Author; Artist

By Elizabeth H. Thomson. With a foreword by John F. Fulton. Henry Schuman, New York. 1950. Price, $4.

Nearly a decade has passed since the death of Harvey Cushing, a great surgeon and one of the most controversial figures of his time. This biography has caught not only his restless and sometimes rebellious spirit, but the great personal charm which made him beloved by his patients and his friends. In addition to unusual scientific acumen Dr. Cushing possessed the talents of artist and writer. In this new biography, which draws on a wealth of fresh material and personal letters, Miss Thomson has also given an engaging picture of his wife and family and shows for the first time what a large part Mrs. Cushing played in influencing her husband's career. This book, is, in fact, the whole warm, intensely human story of Dr. Cushing's personal and professional life.

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Textbook of Endocrinology

Edited by Robert H. Williams, M.D., Professor of Medicine, University of Washington School of Medicine. W. B. Saunders Company, Philadelphia. 1950. Price, $10.

With the collaboration of acknowledged authorities in the field of endocrinology, Dr. Williams presents a complete coverage of the subject. General principles, the pituitary, thyroid, adrenals and laboratory diagnostic and assay procedures are presented by the author. His associates cover the testes, ovaries, pancreas, parathyroids, influence of endocrine glands on growth and development, neuroendocrine and psychodynamic aspects of the endocrinopathies and obesity.

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Penicillin: Its Practical Application

Under the general editorship of Sir Alexander Fleming, M.B., F.R.C.P.: F.R.C.S., F.R.S., Professor Emeritus of Bacteriology, University of London. ed. 2. The C. V. Mosby Company, St. Louis. 1950. Price, $7.

Much rewritten and new chapters added on the toxic manifestations of penicillin and its use in infectious diseases. A chapter on streptomycin and brief mention of aureomycin and chloromycetin are additions.

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Simplified Chemistry Experiments

By Armand Joseph Courchaine, Instructor in Biological Chemistry, Hahnemann Medical College. G. P. Putman's Sons, New York. 1950. A laboratory manual.

Current Therapy

Edited by Howard F. Conn, M.D., Associate Professor of Internal Medicine, University of Michigan Medical School, with the assistance of twelve consultants and 300 contributors. W. B. Saunders Company, Philadelphia. 1950. Price, $10.

Presenting the latest approved methods of treatment; divided into 15 sections covering systems and organs of the body as well as diseases susceptible of grouping, such as infections diseases, venereal diseases, allergic diseases, diseases due to physical and chemical agents.

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The Ethical Basis of Medical Practice

By Willard L. Sperry, dean Harvard Divinity School; with a foreword by J. Howard Means, M.D. Paul B. Hoeber, Inc., New York. 1950. Price, $2.50.

Every medical student will do well to get a copy of this book and read it carefully. The author knows well whereof he speaks. He has lectured much on the subject and what he has said has met with approval of the medical profession. In fact, the book is the result of a suggestion made by Dr. Means that it be written.

Coagulation, Thrombosis and Dicumarol

By Shepard Shapiro, M.D., Assistant Professor of Clinical Medicine, and Murray Weiner, M.D., Fellow in Medicine, New York University College of Medicine. Brooklyn Medical Press, New York. 1950. Price, $5.50.

A text for clinicians and clinical pathologists presenting current theoretical and practical knowledge concerning thrombosis, hemorrhage and anticoagulant therapy.

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A Primer for Diabetic Students

By Russell M. Wilder, M.D., Professor and Chief of the Department of Medicine, Mayo Foundation. Ed. 9. W. B. Saunders Company, Philadelphia. 1950. Price, $2.25.

This book is for the use of the diabetic patient for following out the doctor's instructions. Diabetics will find it a useful guide as to what they should do and should not do.

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A Textbook of Psychiatry for Students and Practitioners

By Sir David Henderson, M.D., Professor of Psychoatry, University of Edinburgh and the Late R. D. Gillespie. Ed. 7. Oxford University Press, New York. 1950. Price, $7.75.

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